AWS Control Tower
AWS Control Tower: User Guide

Copyright © 2023 Amazon Web Services, Inc. and/or its affiliates. All rights reserved.

Amazon's trademarks and trade dress may not be used in connection with any product or service that is not Amazon's, in any manner that is likely to cause confusion among customers, or in any manner that disparages or discredits Amazon. All other trademarks not owned by Amazon are the property of their respective owners, who may or may not be affiliated with, connected to, or sponsored by Amazon.
Table of Contents

What Is AWS Control Tower? ................................................................................................................. 1
  Features .................................................................................................................................................. 1
  How AWS Control Tower interacts with other AWS services ...................................................... 2
  Are You a First-Time User of AWS Control Tower? ........................................................................ 3
  How It Works ......................................................................................................................................... 3
    Structure of an AWS Control Tower Landing Zone ........................................................................ 3
    What happens when you set up a landing zone .............................................................................. 4
    What are the shared accounts? ........................................................................................................... 5
    How controls work .............................................................................................................................. 6
    How AWS Control Tower works with StackSets ........................................................................... 7
Terminology .................................................................................................................................................. 8
Pricing .......................................................................................................................................................... 11
Setting up ................................................................................................................................................ 12
  Sign up for AWS ...................................................................................................................................... 12
    Sign up for an AWS account ................................................................................................................ 12
    Create an administrative user ............................................................................................................. 13
  Next step ................................................................................................................................................ 14
Getting started ........................................................................................................................................ 15
  Quick start guide .................................................................................................................................... 15
  Pre-launch checks .................................................................................................................................. 17
    Considerations for AWS IAM Identity Center (IAM Identity Center) customers ..................... 17
  Getting started from the console ............................................................................................................ 19
    Step 1: Create your shared account email addresses ...................................................................... 19
    Expectations for landing zone configuration ..................................................................................... 21
  Step 2. Configure and launch your landing zone .................................................................................. 22
  Step 3. Review and set up the landing zone ......................................................................................... 30
Getting started using APIs ...................................................................................................................... 30
  Expectations for landing zone configuration with APIs .................................................................... 31
  Step 1: Configure your landing zone ..................................................................................................... 32
  Step 2: Launch your landing zone ........................................................................................................ 35
  Identifying your landing zone ................................................................................................................ 38
  Update your landing zone ...................................................................................................................... 38
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset the landing zone to resolve drift</td>
<td>40</td>
</tr>
<tr>
<td>Decommission your landing zone</td>
<td>41</td>
</tr>
<tr>
<td>Launching a landing zone using AWS CloudFormation</td>
<td>42</td>
</tr>
<tr>
<td>Next steps</td>
<td>48</td>
</tr>
<tr>
<td><strong>Limitations and quotas</strong></td>
<td>49</td>
</tr>
<tr>
<td>Limitations in AWS Control Tower</td>
<td>49</td>
</tr>
<tr>
<td>Control limitations</td>
<td>51</td>
</tr>
<tr>
<td>Regions and stack set limitations</td>
<td>55</td>
</tr>
<tr>
<td><strong>Best practices for administrators</strong></td>
<td>56</td>
</tr>
<tr>
<td>Explaining access to users</td>
<td>56</td>
</tr>
<tr>
<td>Explaining resource access</td>
<td>56</td>
</tr>
<tr>
<td>Explaining preventive controls</td>
<td>57</td>
</tr>
<tr>
<td>Plan your landing zone</td>
<td>58</td>
</tr>
<tr>
<td>Compare functionality</td>
<td>59</td>
</tr>
<tr>
<td>Launch AWS Control Tower in an Existing Organization</td>
<td>60</td>
</tr>
<tr>
<td>Launch AWS Control Tower in a New Organization</td>
<td>61</td>
</tr>
<tr>
<td>Best practices: Set up an AWS multi-account landing zone</td>
<td>61</td>
</tr>
<tr>
<td>Align with AWS multi-account guidance</td>
<td>62</td>
</tr>
<tr>
<td>Guidelines to set up a well-architected environment</td>
<td>63</td>
</tr>
<tr>
<td>Example of AWS Control Tower with a complete multi-account OU structure</td>
<td>66</td>
</tr>
<tr>
<td>About the Root</td>
<td>67</td>
</tr>
<tr>
<td>Administrative tips for landing zone setup</td>
<td>67</td>
</tr>
<tr>
<td>Recommendations for setting up groups, roles, and policies</td>
<td>68</td>
</tr>
<tr>
<td>Guidance for creating and modifying AWS Control Tower resources</td>
<td>69</td>
</tr>
<tr>
<td>When to sign in as a root user</td>
<td>71</td>
</tr>
<tr>
<td>AWS Organizations guidance</td>
<td>72</td>
</tr>
<tr>
<td>IAM Identity Center guidance</td>
<td>73</td>
</tr>
<tr>
<td>Account Factory guidance</td>
<td>75</td>
</tr>
<tr>
<td>Guidance on subscribing to SNS Topics</td>
<td>75</td>
</tr>
<tr>
<td>Guidance for KMS keys</td>
<td>76</td>
</tr>
<tr>
<td><strong>Configuration update management</strong></td>
<td>77</td>
</tr>
<tr>
<td>About Updates</td>
<td>79</td>
</tr>
<tr>
<td>Update Your Landing Zone</td>
<td>79</td>
</tr>
<tr>
<td>Manual updates</td>
<td>80</td>
</tr>
<tr>
<td>Resolve drift with Repair and Re-register</td>
<td>80</td>
</tr>
<tr>
<td>Provision and update accounts using automation</td>
<td>81</td>
</tr>
</tbody>
</table>
Automate tasks .................................................................................................................. 83
AWS CloudShell and the AWS CLI .................................................................................... 85
  Obtaining IAM permissions for AWS CloudShell ......................................................... 85
  Interacting with AWS Control Tower using AWS CloudShell ...................................... 86
AWS CloudFormation resources ....................................................................................... 89
  AWS Control Tower and AWS CloudFormation templates ........................................... 89
  Learn more about AWS CloudFormation ...................................................................... 90

Customize your landing zone ............................................................................................. 91
  Customize from the AWS Control Tower console ....................................................... 91
  Automate customizations outside the AWS Control Tower console ......................... 93
  Benefits of Customizations for AWS Control Tower (CfCT) ........................................ 93
  Additional CfCT examples ............................................................................................ 94
  Customizations for AWS Control Tower (CfCT) overview .......................................... 94
    Architecture .............................................................................................................. 95
    Cost .......................................................................................................................... 97
Component services ......................................................................................................... 98
  AWS CodeCommit ....................................................................................................... 98
  AWS CodePipeline ...................................................................................................... 98
  AWS Key Management Service .................................................................................... 98
  AWS Lambda ............................................................................................................. 98
  Amazon Simple Notification Service ............................................................................ 99
  Amazon Simple Storage Service .................................................................................. 99
  Amazon Simple Queue Service .................................................................................. 99
  AWS Step Functions .................................................................................................... 99
  AWS Systems Manager Parameter Store ...................................................................... 100
Deployment considerations ............................................................................................... 100
  Prepare for deployment .............................................................................................. 100
  To update Customizations for AWS Control Tower .................................................... 102
Template and source code ............................................................................................... 102
  Source code ................................................................................................................ 102
Deploy CfCT .................................................................................................................. 103
  Prerequisites ............................................................................................................... 103
  Deployment steps ........................................................................................................ 103
  Step 1. Launch the stack .............................................................................................. 103
  Step 2. Create a custom package ................................................................................ 108
About accounts ................................................................. 168
   Considerations for bringing existing security or logging accounts .......... 169
View your accounts ........................................................................ 169
Shared account resources ................................................................. 170
About the shared accounts ................................................................ 181
About member accounts .................................................................... 183
Enroll an existing AWS account ........................................................ 184
   What happens during account enrollment ......................................... 185
Enrolling existing accounts with VPCs ............................................... 186
Prerequisites for enrollment ................................................................. 187
Enroll an account ............................................................................. 188
What if the account does not meet the prerequisites? ......................... 191
Example AWS Config CLI commands for resource status .................. 193
Manually add the required IAM role to an existing AWS account and enroll it ................................................................. 193
Automated enrollment of AWS Organizations accounts ..................... 196
Enroll accounts that have existing AWS Config resources .................... 197
   Step 1: Contact customer support with a ticket, to add the account to the AWS Control Tower allow list ................................................................. 199
   Step 2: Create a new IAM role in the member account ....................... 199
   Step 3: Identify the AWS Regions with pre-existing resources ............. 200
   Step 4: Identify the AWS Regions without any AWS Config resources ........ 200
   Step 5: Modify the existing resources in each AWS Region ................. 201
   Step 5a. AWS Config recorder resources ........................................ 201
   Step 5b. Modify AWS Config delivery channel resources .................... 202
   Step 5c. Modify AWS Config aggregation authorization resources .......... 202
   Step 6: Create resources where they don’t exist, in Regions governed by AWS Control Tower ................................................................. 203
   Step 7: Register the OU with AWS Control Tower .......................... 204
Account Factory .............................................................................. 204
   Permissions ............................................................................. 205
Create and provision an account ......................................................... 205
Account considerations ...................................................................... 207
Update and move accounts ............................................................... 207
Change email address of an enrolled account ..................................... 209
Change the name of an enrolled account .......................................... 210
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure Amazon VPC settings</td>
<td>211</td>
</tr>
<tr>
<td>Unmanage an account</td>
<td>212</td>
</tr>
<tr>
<td>Close an account</td>
<td>214</td>
</tr>
<tr>
<td>Account Factory resources</td>
<td>215</td>
</tr>
<tr>
<td>Account Factory Customization (AFC)</td>
<td>217</td>
</tr>
<tr>
<td>Set up for customization</td>
<td>219</td>
</tr>
<tr>
<td>Create a customized account from a blueprint</td>
<td>225</td>
</tr>
<tr>
<td>Enroll and customize accounts</td>
<td>226</td>
</tr>
<tr>
<td>Add a blueprint to an AWS Control Tower account</td>
<td>227</td>
</tr>
<tr>
<td>Update a blueprint</td>
<td>227</td>
</tr>
<tr>
<td>Remove a blueprint from an account</td>
<td>228</td>
</tr>
<tr>
<td>Partner blueprints</td>
<td>228</td>
</tr>
<tr>
<td>Considerations for Account Factory Customizations (AFC)</td>
<td>229</td>
</tr>
<tr>
<td>In case of a blueprint error</td>
<td>229</td>
</tr>
<tr>
<td>Customizing your policy document for AFC blueprints based on CloudFormation</td>
<td>231</td>
</tr>
<tr>
<td>Additional permissions required for creating a Terraform-based Service Catalog product</td>
<td>232</td>
</tr>
<tr>
<td>AWS Control Tower Account Factory for Terraform (AFT)</td>
<td>233</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>234</td>
</tr>
<tr>
<td>Provision a new account</td>
<td>234</td>
</tr>
<tr>
<td>Multiple account requests</td>
<td>236</td>
</tr>
<tr>
<td>Update an existing account</td>
<td>236</td>
</tr>
<tr>
<td>Deploy AFT</td>
<td>237</td>
</tr>
<tr>
<td>AFT overview</td>
<td>241</td>
</tr>
<tr>
<td>Versions supported</td>
<td>244</td>
</tr>
<tr>
<td>Enable feature options</td>
<td>248</td>
</tr>
<tr>
<td>Resources for AFT</td>
<td>251</td>
</tr>
<tr>
<td>Required roles</td>
<td>255</td>
</tr>
<tr>
<td>Component services</td>
<td>258</td>
</tr>
<tr>
<td>AFT account provisioning pipeline</td>
<td>260</td>
</tr>
<tr>
<td>Account customizations</td>
<td>263</td>
</tr>
<tr>
<td>Alternative VCS</td>
<td>269</td>
</tr>
<tr>
<td>Data protection</td>
<td>271</td>
</tr>
<tr>
<td>Remove an account</td>
<td>272</td>
</tr>
<tr>
<td>Operational metrics</td>
<td>274</td>
</tr>
<tr>
<td>Troubleshooting guide</td>
<td>275</td>
</tr>
</tbody>
</table>

**Drift** | 279 |
Detecting drift ........................................................................................................... 279
Resolving drift ......................................................................................................... 281
Considerations about drift and SCP scans ............................................................... 281
Types of drift to repair right away ............................................................................ 282
Repairable changes to resources ............................................................................. 283
Drift and New Account Provisioning ....................................................................... 284
Types of Governance Drift ...................................................................................... 284
  Moved Member Account ......................................................................................... 285
  Removed Member Account ..................................................................................... 287
  Unplanned Update to Managed SCP ...................................................................... 288
  SCP Attached to Managed OU ............................................................................... 289
  SCP Detached from Managed OU .......................................................................... 290
  SCP Attached to Member Account ......................................................................... 291
  Deleted Foundational OU ....................................................................................... 292
  Security Hub control drift ...................................................................................... 292
  Trusted access disabled ......................................................................................... 293
If you manage resources outside of AWS Control Tower ....................................... 294
  Referring to resources outside of AWS Control Tower ........................................ 295
  Externally changing AWS Control Tower resource names ................................. 296
  Deleting the Security OU ....................................................................................... 296
  Removing an account from the Security OU ......................................................... 297
  External changes that are updated automatically .................................................. 299
Organizations ............................................................................................................ 302
  Video Walkthrough ............................................................................................... 303
................................................................................................................................. 303
Extend governance to an existing organization ....................................................... 303
  Video: Enable a Landing Zone in existing AWS Organizations ............................ 304
  Considerations for IAM Identity Center and existing organizations .................. 305
  Access to other AWS services .............................................................................. 305
Nested OUs ............................................................................................................... 305
  Video Walkthrough ............................................................................................... 305
Expand from flat OU structure to nested OU structure .......................................... 306
Nested OU registration pre-checks ........................................................................... 306
Nested OUs and roles ............................................................................................... 307
What happens during registration and re-registration of nested OUs and accounts ... 307
Considerations for nested OU registration ............................................................... 307
Nested OU limitations ................................................................. 308
Nested OUs and compliance ........................................................ 308
Nested OUs and drift ................................................................. 309
Nested OUs and controls ............................................................ 309
Nested OUs and the root ............................................................. 310
Register an OU to enroll multiple accounts .................................. 311
  Register an existing OU .......................................................... 312
  Create a new OU ................................................................... 314
  Common causes of failure during registration or re-registration ...... 315
Update organizations .................................................................. 317
  When to update OUs and accounts ............................................. 317
  Update multiple accounts in one OU ......................................... 318
  What happens during re-registration ......................................... 318
  Update a single account ......................................................... 319

**Controls reference guide** .......................................................... 320

<table>
<thead>
<tr>
<th>Control behavior and guidance</th>
<th>320</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considerations for controls and OUs</td>
<td>322</td>
</tr>
<tr>
<td>Exception to controls for the management account</td>
<td>323</td>
</tr>
<tr>
<td>Considerations for controls and accounts</td>
<td>323</td>
</tr>
<tr>
<td>View control details</td>
<td>324</td>
</tr>
<tr>
<td>List of control objectives</td>
<td>325</td>
</tr>
<tr>
<td>Resource identifiers for APIs and controls</td>
<td>326</td>
</tr>
<tr>
<td></td>
<td>327</td>
</tr>
<tr>
<td></td>
<td>328</td>
</tr>
<tr>
<td>Controls that cannot be changed with the AWS Control Tower APIs</td>
<td>329</td>
</tr>
<tr>
<td>Find identifiers for OUs</td>
<td>330</td>
</tr>
<tr>
<td>Control API examples</td>
<td>330</td>
</tr>
<tr>
<td>EnableControl</td>
<td>331</td>
</tr>
<tr>
<td>DisableControl</td>
<td>332</td>
</tr>
<tr>
<td>GetControlOperation</td>
<td>332</td>
</tr>
<tr>
<td>GetEnabledControl</td>
<td>333</td>
</tr>
<tr>
<td>ListEnabledControls</td>
<td>334</td>
</tr>
<tr>
<td>ListTagsForResource</td>
<td>336</td>
</tr>
<tr>
<td>TagResource</td>
<td>336</td>
</tr>
</tbody>
</table>
## Identity and access management

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentication</td>
<td>2382</td>
</tr>
<tr>
<td>Access control</td>
<td>2384</td>
</tr>
<tr>
<td>IAM Identity Center and AWS Control Tower</td>
<td>2385</td>
</tr>
<tr>
<td>User groups, roles, and permission sets</td>
<td>2386</td>
</tr>
<tr>
<td>Things to know about IAM Identity Center accounts and AWS Control Tower</td>
<td>2386</td>
</tr>
<tr>
<td>IAM Identity Center Groups for AWS Control Tower</td>
<td>2387</td>
</tr>
<tr>
<td>Overview of managing resource access with IAM</td>
<td>2390</td>
</tr>
<tr>
<td>AWS Control Tower resources and operations</td>
<td>2391</td>
</tr>
<tr>
<td>About resource ownership</td>
<td>2391</td>
</tr>
<tr>
<td>Manage access to resources</td>
<td>2392</td>
</tr>
<tr>
<td>Specify policy elements: Actions, Effects, and Principals</td>
<td>2402</td>
</tr>
<tr>
<td>Specifying conditions in a policy</td>
<td>2402</td>
</tr>
<tr>
<td>Prevent confused deputy attacks</td>
<td>2403</td>
</tr>
<tr>
<td>IAM policies for AWS Control Tower</td>
<td>2403</td>
</tr>
<tr>
<td>Permissions Required to Use the AWS Control Tower Console</td>
<td>2404</td>
</tr>
<tr>
<td>AWSControlTowerAdmin role</td>
<td>2404</td>
</tr>
<tr>
<td>AWSControlTowerServiceRolePolicy</td>
<td>2404</td>
</tr>
<tr>
<td>AWSControlTowerStackSetRole</td>
<td>2410</td>
</tr>
<tr>
<td>AWSControlTowerCloudTrailRole</td>
<td>2410</td>
</tr>
<tr>
<td>AWSControlTowerBlueprintAccess role requirements</td>
<td>2411</td>
</tr>
<tr>
<td>AWSServiceRoleForAWSControlTower</td>
<td>2412</td>
</tr>
<tr>
<td>AWSControlTowerAccountServiceRolePolicy</td>
<td>2412</td>
</tr>
<tr>
<td>Managed policies for AWS Control Tower</td>
<td>2415</td>
</tr>
</tbody>
</table>

## Security

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Protection</td>
<td>2420</td>
</tr>
<tr>
<td>Encryption at Rest</td>
<td>2422</td>
</tr>
<tr>
<td>Encryption in Transit</td>
<td>2422</td>
</tr>
<tr>
<td>Restrict Access to Content</td>
<td>2422</td>
</tr>
<tr>
<td>Compliance Validation</td>
<td>2422</td>
</tr>
<tr>
<td>Resilience</td>
<td>2423</td>
</tr>
<tr>
<td>Infrastructure Security</td>
<td>2423</td>
</tr>
</tbody>
</table>

## Logging and monitoring

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>About logging in AWS Control Tower</td>
<td>2426</td>
</tr>
<tr>
<td>S3 bucket policy</td>
<td>2427</td>
</tr>
</tbody>
</table>
Monitoring overview ........................................................................................................... 2429
Logging AWS Control Tower Actions with AWS CloudTrail ........................................ 2430
  AWS Control Tower Information in CloudTrail .......................................................... 2430
Example: AWS Control Tower Log File Entries ......................................................... 2432
Monitor resource changes with AWS Config ............................................................... 2434
  Manage Config costs .................................................................................................... 2434
View the AWS Config recorder data on enrolled accounts ........................................... 2436
Troubleshooting AWS Config in AWS Control Tower ................................................. 2436
Lifecycle Events ............................................................................................................ 2438
  CreateManagedAccount ............................................................................................... 2441
  UpdateManagedAccount .............................................................................................. 2442
  EnableGuardrail .......................................................................................................... 2443
  DisableGuardrail .......................................................................................................... 2445
  SetupLandingZone ....................................................................................................... 2446
  UpdateLandingZone ..................................................................................................... 2448
  RegisterOrganizationalUnit ......................................................................................... 2450
  DeregisterOrganizationalUnit ..................................................................................... 2451
  PrecheckOrganizationalUnit ....................................................................................... 2452
User notifications .......................................................................................................... 2454
Walkthroughs ................................................................................................................ 2457
  Walkthrough: Move from ALZ to AWS Control Tower ............................................... 2457
  Walkthrough: Automate Account Provisioning in AWS Control Tower by Service Catalog
    APIs .............................................................................................................................. 2457
      Sample provisioning input for Service Catalog API ................................................. 2460
      Video Walkthrough ................................................................................................ 2461
  Walkthrough: Configure AWS Control Tower Without a VPC ................................... 2461
    Delete the AWS Control Tower VPC ......................................................................... 2462
    Create an Account in AWS Control Tower Without a VPC ...................................... 2463
  Walkthrough: Set Up Security Groups in AWS Control Tower With AWS Firewall Manager ...
    Set Up Security Groups With AWS Firewall Manager ............................................. 2464
  Walkthrough: Decommission an AWS Control Tower Landing Zone ......................... 2464
    Overview of the decommissioning process ............................................................. 2466
    Resources not removed during decommissioning ..................................................... 2467
    How to decommission a landing zone ...................................................................... 2476
    Setup after decommissioning a landing zone ........................................................... 2478
Troubleshooting ................................................................. 2481
  Landing Zone Launch Failed ........................................ 2481
  Landing zone not up to date error .................................. 2482
  New Account Provisioning Failed .................................... 2482
  Failed to Enroll an Existing Account ............................ 2483
  Unable to Update an Account Factory Account .................. 2483
  Unable to Update Landing Zone ..................................... 2485
  Failure Error that Mentions AWS Config .......................... 2486
  No Launch Paths Found Error ....................................... 2487
  Received an Insufficient Permissions Error ....................... 2488
  Detective controls are not taking effect on accounts .......... 2488
  Rate exceeded error returned by the AWS Organizations API ... 2489
  Failure to move an Account Factory account directly from one AWS Control Tower landing zone to another AWS Control Tower landing zone ........................................ 2490
  AWS Support ................................................................ 2492

Related information .......................................................... 2493
  Tutorials and labs .......................................................... 2493
  Networking .................................................................. 135
  Security, identity, and logging ........................................... 2493
  Deploying resources and managing workloads ................. 2494
  Working with existing organizations and accounts ............ 2494
  Automation and integration ............................................ 2495
  Migrating workloads ..................................................... 2495
  Related AWS services ..................................................... 2496
  AWS Marketplace solutions ............................................ 2496

Release notes .................................................................. 2497
  January 2023 - Present ..................................................... 2497
    AWS Control Tower landing zone version 3.3 ..................... 2498
    Transition to new AWS Service Catalog External product type (phase 2) .................. 2499
    AWS Control Tower announces controls to assist digital sovereignty .................. 2499
    AWS Control Tower supports landing zone APIs .................. 2504
    AWS Control Tower supports tagging for enabled controls ..................... 2505
    AWS Control Tower available in Asia Pacific (Melbourne) Region ................... 2506
    Transition to new AWS Service Catalog External product type (phase 1) ............. 2506
    New control API available ............................................. 2507
    AWS Control Tower adds additional controls .................... 2507
New drift type reported: trusted access disabled ........................................ 2510
Four additional AWS Regions ........................................................................ 2510
AWS Control Tower available in Tel Aviv Region ........................................ 2511
AWS Control Tower launches 28 new proactive controls ............................... 2511
AWS Control Tower deprecates two controls ............................................. 2513
AWS Control Tower landing zone version 3.2 ............................................ 2514
AWS Control Tower handles accounts based on ID ..................................... 2515
Additional Security Hub detective controls available in the AWS Control Tower controls library ................................................................. 2516
AWS Control Tower publishes control metadata tables ............................... 2516
Terraform support for Account Factory Customization ................................ 2517
AWS IAM Identity Center self-management available for landing zone ........ 2518
AWS Control Tower addresses mixed governance for OUs ......................... 2518
Additional proactive controls available ....................................................... 2519
Updated Amazon EC2 proactive controls ................................................... 2521
Seven additional AWS Regions available .................................................... 2521
Account Factory for Terraform (AFT) account customization request tracing 2522
AWS Control Tower landing zone version 3.1 ............................................ 2523
Proactive controls generally available ......................................................... 2524
January - December 2022 ........................................................................... 2525
Concurrent account operations ...................................................................... 2525
Account Factory Customization (AFC) ......................................................... 2526
Comprehensive controls assist in AWS resource provisioning and management 2526
Compliance status viewable for all AWS Config rules .................................. 2527
API for controls and a new AWS CloudFormation resource ......................... 2527
CfCT supports stack set deletion .................................................................. 2528
Customized log retention ............................................................................. 2529
Role drift repair available ............................................................................. 2529
AWS Control Tower landing zone version 3.0 ............................................ 2529
The Organization page combines views of OUs and accounts ................. 2533
Easier enroll and update for individual member accounts ......................... 2534
AFT supports automated customization for shared AWS Control Tower accounts 2534
Concurrent operations for all optional controls .......................................... 2535
Existing security and logging accounts ....................................................... 2536
AWS Control Tower landing zone version 2.9 ............................................ 2536
AWS Control Tower landing zone version 2.8 ............................................ 2537
January - December 2021 ................................................................. 2538
Region deny capabilities ................................................................. 2538
Data residency features ................................................................. 2539
AWS Control Tower introduces Terraform account provisioning and customization 2539
New lifecycle event available .......................................................... 2540
AWS Control Tower enables nested OUs ........................................ 2540
Detective control concurrency ....................................................... 2541
Two new Regions available ........................................................... 2542
Region deselection ........................................................................ 2542
AWS Control Tower works with AWS Key Management Systems .......... 2543
Controls renamed, functionality unchanged ..................................... 2543
AWS Control Tower scans SCPs daily to check for drift .................... 2544
Customized names for OUs and accounts ....................................... 2544
AWS Control Tower landing zone version 2.7 ................................. 2545
Three new AWS Regions available .................................................. 2546
Govern selected Regions only ....................................................... 2546
AWS Control Tower now extends governance to existing OUs in your AWS organizations 2547
AWS Control Tower provides bulk account updates ....................... 2547
January - December 2020 ............................................................... 2548
AWS Control Tower console now links to external AWS Config rules ........ 2548
AWS Control Tower now available in additional Regions .................. 2549
Guardrail update ........................................................................... 2550
AWS Control Tower console shows more detail about OUs and accounts 2550
Use AWS Control Tower to set up new multi-account AWS environments in AWS Organizations ............................................................... 2550
Customizations for AWS Control Tower solution ............................. 2551
General availability of AWS Control Tower version 2.3 ...................... 2552
Single-step account provisioning in AWS Control Tower ...................... 2552
AWS Control Tower decommissioning tool ..................................... 2553
AWS Control Tower lifecycle event notifications .............................. 2553
January - December 2019 ............................................................... 2554
General availability of AWS Control Tower version 2.2 ...................... 2554
New elective controls in AWS Control Tower .................................. 2555
New detective controls in AWS Control Tower ................................ 2555
AWS Control Tower accepts email addresses for shared accounts with different domains than the management account .......................... 2556
General availability of AWS Control Tower version 2.1 ........................................... 2556

Document history ........................................................................................................... 2558

Control metadata tables .............................................................................................. 2575

AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED ....................................................... 2575
AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED .............................................................. 2584
AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED .................................... 2593
AWS-GR_AUDIT_BUCKET_RETENTION_POLICY ......................................................... 2603
AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED ....................... 2612
AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS ..................... 2621
AWS-GR_DISALLOW_CROSS_REGION_NETWORKING .................................................... 2631
AWS-GR_DISALLOW_VPC_INTERNET_ACCESS ............................................................... 2640
AWS-GR_DISALLOW_VPN_CONNECTIONS .................................................................... 2649
AWS-GR_DMS_REPLICATION_NOT_PUBLIC ............................................................... 2657
AWS-GR_EBS_OPTIMIZED_INSTANCE ..................................................................... 2663
AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK ...................................... 2671
AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP ................................................................. 2680
AWS-GR_EC2_VOLUME_INUSE_CHECK .................................................................... 2688
AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS ....................................................... 2696
AWS-GR_ELASTICSEARCH_IN_VPC_ONLY ............................................................. 2701
AWS-GR_EMR_MASTER_NO_PUBLIC_IP ................................................................. 2708
AWS-GR.Encrypted_volumes ...................................................................................... 2713
AWS-GR_IAM_USER_MFA_ENABLED ...................................................................... 2720
AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED ............................. 2726
AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS .............................................. 2735
AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW ....................................................... 2743
AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK .............................................. 2750
AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED .................................................. 2759
AWS-GR_RDS_STORAGE_ENCRYPTED .................................................................. 2766
AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK ........................................... 2773
AWS-GR_REGION_DENY ......................................................................................... 2781
AWS-GR_RESTRICTED_COMMON_PORTS ............................................................... 2789
AWS-GR_RESTRICTED_SSH .................................................................................... 2795
AWS-GR.Restrict_ROOT_USER ............................................................................... 2800
AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS .................................................... 2807
AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION ....................................... 2817
AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA .................................................... 2826
<table>
<thead>
<tr>
<th>AWS Control Tower</th>
<th>User Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.CLOUDFRONT.PR.11</td>
<td>3088</td>
</tr>
<tr>
<td>CT.CLOUDFRONT.PR.2</td>
<td>3094</td>
</tr>
<tr>
<td>CT.CLOUDFRONT.PR.3</td>
<td>3101</td>
</tr>
<tr>
<td>CT.CLOUDFRONT.PR.4</td>
<td>3108</td>
</tr>
<tr>
<td>CT.CLOUDFRONT.PR.5</td>
<td>3114</td>
</tr>
<tr>
<td>CT.CLOUDFRONT.PR.6</td>
<td>3121</td>
</tr>
<tr>
<td>CT.CLOUDFRONT.PR.7</td>
<td>3127</td>
</tr>
<tr>
<td>CT.CLOUDFRONT.PR.8</td>
<td>3134</td>
</tr>
<tr>
<td>CT.CLOUDFRONT.PR.9</td>
<td>3141</td>
</tr>
<tr>
<td>CT.CLOUDTRAIL.PR.1</td>
<td>3147</td>
</tr>
<tr>
<td>CT.CLOUDTRAIL.PR.2</td>
<td>3154</td>
</tr>
<tr>
<td>CT.CLOUDTRAIL.PR.3</td>
<td>3160</td>
</tr>
<tr>
<td>CT.CLOUDTRAIL.PR.4</td>
<td>3167</td>
</tr>
<tr>
<td>CT.CLOUDWATCH.PR.1</td>
<td>3174</td>
</tr>
<tr>
<td>CT.CLOUDWATCH.PR.2</td>
<td>3180</td>
</tr>
<tr>
<td>CT.CLOUDWATCH.PR.3</td>
<td>3187</td>
</tr>
<tr>
<td>CT.CLOUDWATCH.PR.4</td>
<td>3193</td>
</tr>
<tr>
<td>CT.CODEBUILD.PR.1</td>
<td>3200</td>
</tr>
<tr>
<td>CT.CODEBUILD.PR.2</td>
<td>3207</td>
</tr>
<tr>
<td>CT.CODEBUILD.PR.3</td>
<td>3213</td>
</tr>
<tr>
<td>CT.CODEBUILD.PR.4</td>
<td>3220</td>
</tr>
<tr>
<td>CT.CODEBUILD.PR.5</td>
<td>3226</td>
</tr>
<tr>
<td>CT.CODEBUILD.PR.6</td>
<td>3233</td>
</tr>
<tr>
<td>CT.DAX.PR.1</td>
<td>3240</td>
</tr>
<tr>
<td>CT.DAX.PR.2</td>
<td>3246</td>
</tr>
<tr>
<td>CT.DAX.PR.3</td>
<td>3252</td>
</tr>
<tr>
<td>CT.DMS.PR.1</td>
<td>3259</td>
</tr>
<tr>
<td>CT.DMS.PR.2</td>
<td>3265</td>
</tr>
<tr>
<td>CT.DOCUMENTDB.PR.1</td>
<td>3272</td>
</tr>
<tr>
<td>CT.DOCUMENTDB.PR.2</td>
<td>3278</td>
</tr>
<tr>
<td>CT.DYNAMODB.PR.1</td>
<td>3285</td>
</tr>
<tr>
<td>CT.DYNAMODB.PR.2</td>
<td>3292</td>
</tr>
<tr>
<td>CT.EC2.PR.1</td>
<td>3298</td>
</tr>
<tr>
<td>CT.EC2.PR.10</td>
<td>3305</td>
</tr>
<tr>
<td>CT.EC2.PR.11</td>
<td>3311</td>
</tr>
<tr>
<td>CT.EC2.PR.12</td>
<td>3318</td>
</tr>
<tr>
<td>CT.NETWORK-FIREWALL.PR.2</td>
<td>.................................................................</td>
</tr>
<tr>
<td>CT.NETWORK-FIREWALL.PR.3</td>
<td>.................................................................</td>
</tr>
<tr>
<td>CT.NETWORK-FIREWALL.PR.4</td>
<td>.................................................................</td>
</tr>
<tr>
<td>CT.NETWORK-FIREWALL.PR.5</td>
<td>.................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.1</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.10</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.11</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.12</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.13</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.14</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.15</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.16</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.2</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.3</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.4</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.5</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.6</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.7</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.8</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.9</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.1</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.10</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.11</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.12</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.13</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.14</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.15</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.16</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.17</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.18</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.19</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.2</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.20</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.21</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.22</td>
<td>...........................................................................</td>
</tr>
<tr>
<td>CT.RDS.PR.23</td>
<td>...........................................................................</td>
</tr>
</tbody>
</table>
SH.CodeBuild.2 ................................................................. 4685
SH.CodeBuild.3 ................................................................. 4689
SH.CodeBuild.4 .................................................................. 4693
SH.CodeBuild.5 ................................................................. 4697
SH.DMS.1 ........................................................................ 4701
SH.DMS.9 ........................................................................ 4705
SH.DocumentDB.3 .............................................................. 4709
SH.DynamoDB.1 ............................................................... 4713
SH.DynamoDB.2 ............................................................... 4717
SH.DynamoDB.3 ............................................................... 4721
SH.EC2.1 ...................................................................... 4725
SH.EC2.10 .................................................................. 4729
SH.EC2.15 .................................................................. 4733
SH.EC2.16 .................................................................. 4737
SH.EC2.17 .................................................................. 4741
SH.EC2.18 .................................................................. 4745
SH.EC2.19 .................................................................. 4749
SH.EC2.2 ...................................................................... 4753
SH.EC2.20 .................................................................. 4757
SH.EC2.21 .................................................................. 4761
SH.EC2.22 .................................................................. 4765
SH.EC2.23 .................................................................. 4769
SH.EC2.25 .................................................................. 4773
SH.EC2.3 ...................................................................... 4777
SH.EC2.4 ...................................................................... 4781
SH.EC2.6 ...................................................................... 4785
SH.EC2.7 ...................................................................... 4789
SH.EC2.8 ...................................................................... 4793
SH.EC2.9 ...................................................................... 4797
SH.ECR.1 .................................................................... 4801
SH.ECR.2 .................................................................... 4805
SH.ECR.3 .................................................................... 4809
SH.ECS.1 .................................................................... 4813
SH.ECS.10 .................................................................. 4817
SH.ECS.12 .................................................................. 4821
SH.ECS.2 .................................................................. 4825
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ECS.3</td>
<td>4829</td>
</tr>
<tr>
<td>SH.ECS.4</td>
<td>4833</td>
</tr>
<tr>
<td>SH.ECS.5</td>
<td>4837</td>
</tr>
<tr>
<td>SH.ECS.8</td>
<td>4841</td>
</tr>
<tr>
<td>SH.EFS.1</td>
<td>4845</td>
</tr>
<tr>
<td>SH.EFS.2</td>
<td>4849</td>
</tr>
<tr>
<td>SH.EFS.3</td>
<td>4853</td>
</tr>
<tr>
<td>SH.EFS.4</td>
<td>4857</td>
</tr>
<tr>
<td>SH.EKS.1</td>
<td>4861</td>
</tr>
<tr>
<td>SH.EKS.2</td>
<td>4865</td>
</tr>
<tr>
<td>SH.ELB.10</td>
<td>4869</td>
</tr>
<tr>
<td>SH.ELB.12</td>
<td>4873</td>
</tr>
<tr>
<td>SH.ELB.13</td>
<td>4877</td>
</tr>
<tr>
<td>SH.ELB.14</td>
<td>4881</td>
</tr>
<tr>
<td>SH.ELB.2</td>
<td>4885</td>
</tr>
<tr>
<td>SH.ELB.3</td>
<td>4889</td>
</tr>
<tr>
<td>SH.ELB.4</td>
<td>4893</td>
</tr>
<tr>
<td>SH.ELB.5</td>
<td>4897</td>
</tr>
<tr>
<td>SH.ELB.6</td>
<td>4901</td>
</tr>
<tr>
<td>SH.ELB.7</td>
<td>4905</td>
</tr>
<tr>
<td>SH.ELB.8</td>
<td>4909</td>
</tr>
<tr>
<td>SH.ELB.9</td>
<td>4913</td>
</tr>
<tr>
<td>SH.ELBv2.1</td>
<td>4917</td>
</tr>
<tr>
<td>SH.EMR.1</td>
<td>4921</td>
</tr>
<tr>
<td>SH.ES.1</td>
<td>4925</td>
</tr>
<tr>
<td>SH.ES.2</td>
<td>4929</td>
</tr>
<tr>
<td>SH.ES.3</td>
<td>4933</td>
</tr>
<tr>
<td>SH.ES.4</td>
<td>4937</td>
</tr>
<tr>
<td>SH.ES.5</td>
<td>4941</td>
</tr>
<tr>
<td>SH.ES.6</td>
<td>4945</td>
</tr>
<tr>
<td>SH.ES.7</td>
<td>4949</td>
</tr>
<tr>
<td>SH.ES.8</td>
<td>4953</td>
</tr>
<tr>
<td>SH.ElastiCache.3</td>
<td>4957</td>
</tr>
<tr>
<td>SH.ElastiCache.4</td>
<td>4961</td>
</tr>
<tr>
<td>SH.ElastiCache.5</td>
<td>4965</td>
</tr>
<tr>
<td>SH.ElastiCache.6</td>
<td>4969</td>
</tr>
<tr>
<td>Topic</td>
<td>Page</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------</td>
</tr>
<tr>
<td>SH.ElasticBeanstalk.1</td>
<td>4973</td>
</tr>
<tr>
<td>SH.ElasticBeanstalk.2</td>
<td>4977</td>
</tr>
<tr>
<td>SH.EventBridge.3</td>
<td>4981</td>
</tr>
<tr>
<td>SH.GuardDuty.1</td>
<td>4985</td>
</tr>
<tr>
<td>SH.IAM.1</td>
<td>4989</td>
</tr>
<tr>
<td>SH.IAM.2</td>
<td>4993</td>
</tr>
<tr>
<td>SH.IAM.21</td>
<td>4997</td>
</tr>
<tr>
<td>SH.IAM.3</td>
<td>5001</td>
</tr>
<tr>
<td>SH.IAM.4</td>
<td>5005</td>
</tr>
<tr>
<td>SH.IAM.5</td>
<td>5009</td>
</tr>
<tr>
<td>SH.IAM.6</td>
<td>5013</td>
</tr>
<tr>
<td>SH.IAM.7</td>
<td>5017</td>
</tr>
<tr>
<td>SH.IAM.8</td>
<td>5021</td>
</tr>
<tr>
<td>SH.KMS.1</td>
<td>5025</td>
</tr>
<tr>
<td>SH.KMS.2</td>
<td>5029</td>
</tr>
<tr>
<td>SH.KMS.3</td>
<td>5033</td>
</tr>
<tr>
<td>SH.KMS.4</td>
<td>5037</td>
</tr>
<tr>
<td>SH.Kinesis.1</td>
<td>5041</td>
</tr>
<tr>
<td>SH.Lambda.1</td>
<td>5045</td>
</tr>
<tr>
<td>SH.Lambda.2</td>
<td>5049</td>
</tr>
<tr>
<td>SH.Lambda.3</td>
<td>5053</td>
</tr>
<tr>
<td>SH.Lambda.5</td>
<td>5057</td>
</tr>
<tr>
<td>SH.MQ.5</td>
<td>5061</td>
</tr>
<tr>
<td>SH.MQ.6</td>
<td>5065</td>
</tr>
<tr>
<td>SH.MSK.1</td>
<td>5069</td>
</tr>
<tr>
<td>SH.Neptune.1</td>
<td>5073</td>
</tr>
<tr>
<td>SH.Neptune.2</td>
<td>5077</td>
</tr>
<tr>
<td>SH.Neptune.3</td>
<td>5081</td>
</tr>
<tr>
<td>SH.Neptune.4</td>
<td>5085</td>
</tr>
<tr>
<td>SH.Neptune.5</td>
<td>5089</td>
</tr>
<tr>
<td>SH.Neptune.6</td>
<td>5093</td>
</tr>
<tr>
<td>SH.Neptune.7</td>
<td>5097</td>
</tr>
<tr>
<td>SH.Neptune.8</td>
<td>5101</td>
</tr>
<tr>
<td>SH.NetworkFirewall.3</td>
<td>5105</td>
</tr>
<tr>
<td>SH.NetworkFirewall.4</td>
<td>5109</td>
</tr>
<tr>
<td>SH.NetworkFirewall.5</td>
<td>5113</td>
</tr>
<tr>
<td>SH.NetworkFirewall.6</td>
<td>5117</td>
</tr>
<tr>
<td>SH.Opensearch.1</td>
<td>5121</td>
</tr>
<tr>
<td>SH.Opensearch.2</td>
<td>5125</td>
</tr>
<tr>
<td>SH.Opensearch.3</td>
<td>5129</td>
</tr>
<tr>
<td>SH.Opensearch.4</td>
<td>5133</td>
</tr>
<tr>
<td>SH.Opensearch.5</td>
<td>5137</td>
</tr>
<tr>
<td>SH.Opensearch.6</td>
<td>5141</td>
</tr>
<tr>
<td>SH.Opensearch.7</td>
<td>5145</td>
</tr>
<tr>
<td>SH.Opensearch.8</td>
<td>5149</td>
</tr>
<tr>
<td>SH.RDS.1</td>
<td>5153</td>
</tr>
<tr>
<td>SH.RDS.10</td>
<td>5157</td>
</tr>
<tr>
<td>SH.RDS.11</td>
<td>5161</td>
</tr>
<tr>
<td>SH.RDS.12</td>
<td>5165</td>
</tr>
<tr>
<td>SH.RDS.13</td>
<td>5169</td>
</tr>
<tr>
<td>SH.RDS.15</td>
<td>5173</td>
</tr>
<tr>
<td>SH.RDS.17</td>
<td>5177</td>
</tr>
<tr>
<td>SH.RDS.18</td>
<td>5181</td>
</tr>
<tr>
<td>SH.RDS.19</td>
<td>5185</td>
</tr>
<tr>
<td>SH.RDS.2</td>
<td>5189</td>
</tr>
<tr>
<td>SH.RDS.20</td>
<td>5193</td>
</tr>
<tr>
<td>SH.RDS.21</td>
<td>5197</td>
</tr>
<tr>
<td>SH.RDS.22</td>
<td>5201</td>
</tr>
<tr>
<td>SH.RDS.23</td>
<td>5205</td>
</tr>
<tr>
<td>SH.RDS.25</td>
<td>5209</td>
</tr>
<tr>
<td>SH.RDS.27</td>
<td>5213</td>
</tr>
<tr>
<td>SH.RDS.3</td>
<td>5217</td>
</tr>
<tr>
<td>SH.RDS.4</td>
<td>5221</td>
</tr>
<tr>
<td>SH.RDS.5</td>
<td>5225</td>
</tr>
<tr>
<td>SH.RDS.6</td>
<td>5229</td>
</tr>
<tr>
<td>SH.RDS.8</td>
<td>5233</td>
</tr>
<tr>
<td>SH.RDS.9</td>
<td>5237</td>
</tr>
<tr>
<td>SH.Redshift.1</td>
<td>5241</td>
</tr>
<tr>
<td>SH.Redshift.10</td>
<td>5245</td>
</tr>
<tr>
<td>SH.Redshift.2</td>
<td>5249</td>
</tr>
<tr>
<td>SH.Redshift.4</td>
<td>5253</td>
</tr>
<tr>
<td>SH.Redshift.6</td>
<td>5257</td>
</tr>
</tbody>
</table>
What Is AWS Control Tower?

AWS Control Tower offers a straightforward way to set up and govern an AWS multi-account environment, following prescriptive best practices. AWS Control Tower orchestrates the capabilities of several other AWS services, including AWS Organizations, AWS Service Catalog, and AWS IAM Identity Center, to build a landing zone in less than an hour. Resources are set up and managed on your behalf.

AWS Control Tower orchestration extends the capabilities of AWS Organizations. To help keep your organizations and accounts from drift, which is divergence from best practices, AWS Control Tower applies controls (sometimes called guardrails). For example, you can use controls to help ensure that security logs and necessary cross-account access permissions are created, and not altered.

If you are hosting more than a handful of accounts, it’s beneficial to have an orchestration layer that facilitates account deployment and account governance. You can adopt AWS Control Tower as your primary way to provision accounts and infrastructure. With AWS Control Tower, you can more easily adhere to corporate standards, meet regulatory requirements, and follow best practices.

AWS Control Tower enables end users on your distributed teams to provision new AWS accounts quickly, by means of configurable account templates in Account Factory. Meanwhile, your central cloud administrators can monitor that all accounts are aligned with established, company-wide compliance policies.

In short, AWS Control Tower offers the easiest way to set up and govern a secure, compliant, multi-account AWS environment based on best practices established by working with thousands of enterprises. For more information about the working with AWS Control Tower and the best practices outlined in the AWS multi-account strategy, see AWS multi-account strategy: Best practices guidance.

Features

AWS Control Tower has the following features:

- **Landing zone** – A landing zone is a well-architected, multi-account environment that's based on security and compliance best practices. It is the enterprise-wide container that holds all of your organizational units (OUs), accounts, users, and other resources that you want to be subject to compliance regulation. A landing zone can scale to fit the needs of an enterprise of any size.
• **Controls** – A control (sometimes called a *guardrail*) is a high-level rule that provides ongoing governance for your overall AWS environment. It's expressed in plain language. Three kinds of controls exist: *preventive*, *detective*, and *proactive*. Three categories of guidance apply to controls: *mandatory*, *strongly recommended*, or *elective*. For more information about controls, see [How controls work](#).

• **Account Factory** – An Account Factory is a configurable account template that helps to standardize the provisioning of new accounts with pre-approved account configurations. AWS Control Tower offers a built-in Account Factory that helps automate the account provisioning workflow in your organization. For more information, see [Provision and manage accounts with Account Factory](#).

• **Dashboard** – The dashboard offers continuous oversight of your landing zone to your team of central cloud administrators. Use the dashboard to see provisioned accounts across your enterprise, controls enabled for policy enforcement, controls enabled for continuous detection of policy non-conformance, and noncompliant resources organized by accounts and OUs.

### How AWS Control Tower interacts with other AWS services

AWS Control Tower is built on top of trusted and reliable AWS services including AWS Service Catalog, AWS IAM Identity Center, and AWS Organizations. For more information, see [Integrated services](#).

You can incorporate AWS Control Tower with other AWS services into a solution that helps you migrate your existing workloads to AWS. For more information, see [How to take advantage of AWS Control Tower and CloudEndure to migrate workloads to AWS](#).

### Configuration, Governance, and Extensibility

• *Automated account configuration:* AWS Control Tower automates account deployment and enrollment by means of an Account Factory (or “vending machine”), which is built as an abstraction on top of provisioned products in AWS Service Catalog. The Account Factory can create and enroll AWS accounts, and it automates the process of applying controls and policies to those accounts.

• *Centralized governance:* By employing the capabilities of AWS Organizations, AWS Control Tower sets up a framework that ensures consistent compliance and governance across your multi-account environment. The AWS Organizations service provides essential capabilities for managing a multi-account environment, including central governance and management of accounts, account creation from AWS Organizations APIs, and service control policies (SCPs).
Extensibility: You can build or extend your own AWS Control Tower environment by working directly in AWS Organizations, as well as in the AWS Control Tower console. You can see your changes reflected in AWS Control Tower after you register your existing organizations and enroll your existing accounts into AWS Control Tower. You can update your AWS Control Tower landing zone to reflect your changes. If your workloads require further advanced capabilities, you can leverage other AWS partner solutions along with AWS Control Tower.

Are You a First-Time User of AWS Control Tower?

If you're a first-time user of this service, we recommend that you read the following:

1. If you need more information about how to plan and organize your landing zone, see Plan your AWS Control Tower landing zone and AWS multi-account strategy for your AWS Control Tower landing zone.
2. If you're ready to create your first landing zone, see Getting started with AWS Control Tower.
3. For information on drift detection and prevention, see Detect and resolve drift in AWS Control Tower.
4. For security details, see Security in AWS Control Tower.
5. For information on updating your landing zone and member accounts, see Configuration update management in AWS Control Tower.

How AWS Control Tower Works

This section describes at a high level how AWS Control Tower works. Your landing zone is a well-architected multi-account environment for all of your AWS resources. You can use this environment to enforce compliance regulations on all of your AWS accounts.

Structure of an AWS Control Tower Landing Zone

The structure of a landing zone in AWS Control Tower is as follows:

- Root – The parent that contains all other OUs in your landing zone.
- Security OU – This OU contains the Log Archive and Audit accounts. These accounts often are referred to as shared accounts. When you launch your landing zone, you can choose customized
names for these shared accounts, and you have the option to bring existing AWS accounts into AWS Control Tower for security and logging. However, these cannot be renamed later, and existing accounts cannot be added for security and logging after initial launch.

- **Sandbox OU** – The Sandbox OU is created when you launch your landing zone, if you enable it. This and other registered OUs contain the enrolled accounts that your users work with to perform their AWS workloads.

- **IAM Identity Center directory** – This directory houses your IAM Identity Center users. It defines the scope of permissions for each IAM Identity Center user.

- **IAM Identity Center users** – These are the identities that your users can assume to perform their AWS workloads in your landing zone.

**What happens when you set up a landing zone**

When you set up a landing zone, AWS Control Tower performs the following actions in your management account on your behalf:

- Creates two AWS Organizations organizational units (OUs): Security, and Sandbox (optional), contained within the organizational root structure.

- Creates or adds two shared accounts in the Security OU: the Log Archive account and the Audit account.

- Creates a cloud-native directory in IAM Identity Center, with preconfigured groups and single sign-on access, if you choose the default AWS Control Tower configuration, or it allows you to self-manage your identity provider.

- Applies all mandatory, preventive controls to enforce policies.

- Applies all mandatory, detective controls to detect configuration violations.

- **Preventive controls are not applied to the management account.**

- Except for the management account, controls are applied to the organization as a whole.

**Safely Managing Resources Within Your AWS Control Tower Landing Zone and Accounts**

- When you create your landing zone, a number of AWS resources are created. To use AWS Control Tower, you must not modify or delete these AWS Control Tower managed resources outside of the supported methods described in this guide. Deleting or modifying these resources will cause your landing zone to enter an unknown state. For details, see [Guidance for creating and modifying AWS Control Tower resources](#).
• When you enable optional controls (those with strongly recommended or elective guidance), AWS Control Tower creates AWS resources that it manages in your accounts. Do not modify or delete resources created by AWS Control Tower. Doing so can result in the controls entering an unknown state. For more information, see The AWS Control Tower controls library.

What are the shared accounts?

In AWS Control Tower, the shared accounts in your landing zone are provisioned during setup: the management account, the log archive account, and the audit account.

What is the management account?

This is the account that you created specifically for your landing zone. This account is used for billing for everything in your landing zone. It's also used for Account Factory provisioning of accounts, as well as to manage OUs and controls.

Note

It is not recommended to run any type of production workloads from an AWS Control Tower management account. Create a separate AWS Control Tower account to run your workloads.

For more information, see Management account.

What is the log archive account?

This account works as a repository for logs of API activities and resource configurations from all accounts in the landing zone.

For more information, see Log archive account.

What is the audit account?

The audit account is a restricted account that's designed to give your security and compliance teams read and write access to all accounts in your landing zone. From the audit account, you have programmatic access to review accounts, by means of a role that is granted to Lambda functions only. The audit account does not allow you to log in to other accounts manually. For
more information about Lambda functions and roles, see Configure a Lambda function to assume a role from another AWS account.

For more information, see Audit account.

How controls work

A control is a high-level rule that provides ongoing governance for your overall AWS environment. Each control enforces a single rule, and it's expressed in plain language. You can change the elective or strongly recommended controls that are in force, at any time, from the AWS Control Tower console or the AWS Control Tower APIs. Mandatory controls are always applied, and they can't be changed.

Preventive controls prevent actions from occurring. For example, the elective control called Disallow Changes to Bucket Policy for Amazon S3 Buckets (Previously called Disallow Policy Changes to Log Archive) prevents any IAM policy changes within the log archive shared account. Any attempt to perform a prevented action is denied and logged in CloudTrail. The resource is also logged in AWS Config.

Detective controls detect specific events when they occur and log the action in CloudTrail. For example, the strongly recommended control called Detect Whether Encryption is Enabled for Amazon EBS Volumes Attached to Amazon EC2 Instances detects whether an unencrypted Amazon EBS volume is attached to an EC2 instance in your landing zone.

Proactive controls check whether resources are compliant with your company policies and objectives, before the resources are provisioned in your accounts. If the resources are out of compliance, they are not provisioned. Proactive controls monitor resources that would be deployed in your accounts by means of AWS CloudFormation templates.

For those who are familiar with AWS: In AWS Control Tower preventive controls are implemented with Service Control Policies (SCPs). Detective controls are implemented with AWS Config rules. Proactive controls are implemented with AWS CloudFormation hooks.

Related Topics

• About controls in AWS Control Tower
• Detect and resolve drift in AWS Control Tower
• The AWS Control Tower controls library
How AWS Control Tower works with StackSets

AWS Control Tower uses AWS CloudFormation StackSets to set up resources in your accounts. Each stack set has StackInstances that correspond to accounts, and to AWS Regions per account. AWS Control Tower deploys one stack set instance per account and Region.

AWS Control Tower applies updates to certain accounts and AWS Regions selectively, based on AWS CloudFormation parameters. When updates are applied to some stack instances, other stack instances may be left in Outdated status. This behavior is expected and normal.

When a stack instance goes into Outdated status, it usually means that the stack corresponding to that stack instance is not aligned with the latest template in the stack set. The stack remains in the older template, so it might not include the latest resources or parameters. The stack is still completely usable.

Here's a quick summary of what behavior to expect, based on AWS CloudFormation parameters that are specified during an update:

If the stack set update includes changes to the template (that is, if the TemplateBody or TemplateURL properties are specified), or if the Parameters property is specified, AWS CloudFormation marks all stack instances with a status of Outdated prior to updating the stack instances in the specified accounts and AWS Regions. If the stack set update does not include changes to the template or parameters, AWS CloudFormation updates the stack instances in the specified accounts and Regions, while leaving all other stack instances with their existing stack instance status. To update all of the stack instances associated with a stack set, do not specify the Accounts or Regions properties.

For more information, see Update Your Stack Set in the AWS CloudFormation User Guide.
Terminology

Here’s a quick review of some terms you’ll see in the AWS Control Tower documentation.

First, it’s good to know that AWS Control Tower shares a lot of terminology with the AWS Organizations service, including the terms organization and organizational unit (OU), which appear throughout this document.

- For more information about organizations and OUs, see AWS Organizations terminology and concepts. If you're new to AWS Control Tower, that terminology is a good place to begin.
- AWS Organizations is an AWS service that helps you centrally govern your environment as you grow and scale your workloads on AWS. AWS Control Tower relies on AWS Organizations to create accounts, to enforce preventive controls at the OU level, and to provide centralized billing.
- An AWS Account Factory account is an AWS account provisioned using Account Factory in AWS Control Tower. Sometimes, Account Factory is referred to informally as a “vending machine” for accounts.
- Your AWS Control Tower home Region is the AWS Region in which your AWS Control Tower landing zone was deployed. You can view your home Region in your landing zone settings.
- AWS Service Catalog allows you to manage commonly deployed IT services, centrally. In the context of this document, Account Factory uses AWS Service Catalog to provision new AWS accounts, including accounts from customized blueprints.
- AWS CloudFormation StackSets are a type of resource that extends the functionality of stacks so that you can create, update, or delete stacks across multiple accounts and Regions with a single operation and a single CloudFormation template.
- A stack instance is a reference to a stack in a target account within a Region.
- A stack is a collection of AWS resources that you can manage as a single unit.
- An aggregator is an AWS Config resource type that collects AWS Config configuration and compliance data from multiple accounts and Regions within the organization, allowing you to view and query this compliance data within a single account.
- A conformance pack is a collection of AWS Config rules and remediation actions that can be deployed as a single entity in an account and a Region, or across an organization in AWS Organizations. You can use a conformance pack to help customize your AWS Control Tower environment. For technical blogs that provide more details, see Related information.
- Baseline: To baseline an account is to set up its blueprints and controls. The baselining process also sets up the centralized logging and security audit roles on the account, as part of deploying
the blueprints. AWS Control Tower baselines are contained in the roles that you apply to every enrolled account.

- **Blueprint:** A blueprint is an artifact that encapsulates some metadata, which describes infrastructure components that are deployed within an account. For example, an AWS CloudFormation template can serve as a blueprint for an AWS Control Tower account.

- **Drift:** A change in a resource installed by and configured by AWS Control Tower. Resources without drift enable AWS Control Tower to function properly.

- **Non-compliant resource:** A resource that is in violation of an AWS Config rule that defines a particular detective control.

- **Shared account:** One of the three accounts that AWS Control Tower creates automatically when you set up your landing zone: the management account, the log archive account, and the audit account. You can choose customized names for the log archive account and the audit account, during setup.

- **Member account:** A member account belongs to the AWS Control Tower organization. The member account can be *enrolled* or *unenrolled* in AWS Control Tower. When a registered OU contains a mix of enrolled and unenrolled accounts:
  - Preventive controls enabled on the OU apply to all accounts within it, including unenrolled ones. This is true because preventive controls are enforced with SCPs at the OU level, not the account level. For more information, see *Inheritance for service control policies* in the AWS Organizations documentation.
  - Detective controls enabled on the OU do not apply to unenrolled accounts.

An account can be a member of only one organization at a time, and its charges are billed to the management account for that organization. A member account can be moved to the root container of an organization.

- **AWS account:** An AWS account acts as a resource container and resource isolation boundary. An AWS account can be associated with billing and payment. An AWS account is different than a user account (sometimes called an IAM user account) in AWS Control Tower. Accounts created through the Account Factory provisioning process are AWS accounts. AWS accounts also can be added to AWS Control Tower by means of the account enrollment or OU registration process.

- **Control:** A control (also known as a guardrail) is a high-level rule that provides ongoing governance for your overall AWS Control Tower environment. Each control enforces a single rule. Preventive controls are implemented with SCPs. Detective controls are implemented with AWS Config rules. Proactive controls are implemented with AWS CloudFormation hooks. For more information, see *How controls work*.
• **Landing zone:** A landing zone is a cloud environment that offers a recommended starting point, including default accounts, account structure, network and security layouts, and so forth. From a landing zone, you can deploy workloads that utilize your solutions and applications.

• **Nested OU:** A nested OU in AWS Control Tower is an OU contained within another OU. A nested OU can have exactly one parent OU, and each account can be a member of exactly one OU. Nested OUs create a hierarchy. When you attach a policy to one of the OUs in the hierarchy, it flows down and affects all the OUs and accounts beneath it. A nested OU hierarchy in AWS Control Tower can be a maximum of five levels deep.

• **Parent OU:** The OU immediately above the current OU in the hierarchy. Each OU can have exactly one parent OU.

• **Child OU:** Any OU below the current OU in the hierarchy. An OU can have many child OUs.

• **OU hierarchy:** In AWS Control Tower, the hierarchy of nested OUs can have up to five levels. The order of nesting is referred to as **Levels.** The top of the hierarchy is designated as **Level 1.**

• **Top-level OU:** A top-level OU is any OU that's directly under the Root, not the Root itself. The Root is not considered an OU.
Pricing

No additional charge exists for using AWS Control Tower. You only pay for the AWS services enabled by AWS Control Tower, and the services you use in your landing zone. For example, you pay for Service Catalog for provisioning accounts with Account Factory, and AWS CloudTrail for events tracked in your landing zone. For information about the pricing and fees associated with AWS Control Tower, see [AWS Control Tower pricing](#).

If you are running ephemeral workloads from accounts in AWS Control Tower, you may see an increase in costs associated with AWS Config. For details, see [AWS Config pricing](#). Contact your AWS account representative for more specific information about managing these costs. To learn more about how AWS Config works with AWS Control Tower, see [Monitor resource changes with AWS Config](#).

If you implement AWS CloudTrail trails outside of AWS Control Tower, you can use them with AWS Control Tower. However, you may incur duplicate charges, if you also opt in to trails managed by AWS Control Tower. We do not recommend setting up external trails, unless you have a specific requirement. If you choose to opt in during landing zone setup or update, AWS Control Tower sets up and activates an organization-level CloudTrail trail for you in the management account. For information about managing CloudTrail costs, see [Managing CloudTrail costs](#).
Setting up

Before you use AWS Control Tower for the first time, follow the steps in this section to create an AWS account and protect your AWS Control Tower management account. For information on additional setup tasks specifically for AWS Control Tower, see Getting started with AWS Control Tower.

Sign up for AWS

When you sign up for Amazon Web Services (AWS), your AWS account is automatically signed up for all services in AWS, including AWS Control Tower. If you have an AWS account already, skip to the next task. If you don't have an AWS account, use the following procedure to create one.

Note your AWS account number, because you need it for other tasks.

Sign up for an AWS account

If you do not have an AWS account, complete the following steps to create one.

To sign up for an AWS account

2. Follow the online instructions.

   Part of the sign-up procedure involves receiving a phone call and entering a verification code on the phone keypad.

   When you sign up for an AWS account, an AWS account root user is created. The root user has access to all AWS services and resources in the account. As a security best practice, assign administrative access to an administrative user, and use only the root user to perform tasks that require root user access.

   AWS sends you a confirmation email after the sign-up process is complete. At any time, you can view your current account activity and manage your account by going to https://aws.amazon.com/ and choosing My Account.
Create an administrative user

After you sign up for an AWS account, create an administrative user so that you don't use the root user for everyday tasks.

Secure your AWS account root user

1. Sign in to the AWS Management Console as the account owner by choosing Root user and entering your AWS account email address. On the next page, enter your password.
   
   For help signing in by using root user, see Signing in as the root user in the AWS Sign-In User Guide.

2. Turn on multi-factor authentication (MFA) for your root user.
   
   For instructions, see Enable a virtual MFA device for your AWS account root user (console) in the IAM User Guide.

Create an administrative user

• For your daily administrative tasks, grant administrative access to an administrative user in AWS IAM Identity Center.

   For instructions, see Getting started in the AWS IAM Identity Center User Guide.

Sign in as the administrative user

• To sign in with your IAM Identity Center user, use the sign-in URL that was sent to your email address when you created the IAM Identity Center user.

   For help signing in using an IAM Identity Center user, see Signing in to the AWS access portal in the AWS Sign-In User Guide.

Security for your accounts

You can find additional guidance about how to set up best practices that protect the security of your AWS Control Tower accounts, in the AWS Organizations documentation.

• Best practices for the management account
• **Best practices for member accounts**

**Next step**

*Getting started with AWS Control Tower*
Getting started with AWS Control Tower

This getting started procedure is intended for AWS Control Tower administrators. Follow this procedure when you're ready to set up your landing zone using the AWS Control Tower console or APIs.

If you are an AWS customer currently, but new to AWS Control Tower, you may wish to review the section called Plan your AWS Control Tower landing zone, before you proceed.

Topics

- AWS Control Tower quick start guide
- Prerequisite: Automated pre-launch checks for your management account
- Getting started with AWS Control Tower from the console
- Getting started with AWS Control Tower using APIs
- Next steps

AWS Control Tower quick start guide

If you are new to AWS, you can follow the steps in this section to get started quickly with AWS Control Tower. If you prefer to customize your AWS Control Tower environment right away, see Step 2. Configure and launch your landing zone.

Note

AWS Control Tower sets up paid services, such as AWS CloudTrail, AWS Config, Amazon CloudWatch, Amazon S3, and Amazon VPC. When used, these services may incur costs, as shown on the pricing page. The AWS management console shows you the usage of any paid services and the costs incurred. No additional costs are created by AWS Control Tower itself.

Before you begin

The most important decision to make before you begin the setup process is to choose your home Region. Your home Region is the AWS Region in which you'll run most of your workloads or store most of your data. It cannot be changed after you've set up your AWS Control Tower landing zone.
For more information about how to choose a home Region, see Administrative tips for landing zone setup.

Note

By default, AWS Control Tower chooses the Region in which your account is operating currently as your home Region. You can see your current Region in the upper right of your AWS management console screen.

The quick start procedure assumes that you'll accept the default values for the resources in your AWS Control Tower environment. Many of these choices can be changed later. A few one-time choices are listed in the section called Expectations for landing zone configuration.

If you've created a new AWS account, it automatically meets the required prerequisites for setting up AWS Control Tower. You can proceed through the steps that follow.

Quick start steps

1. Sign in to the AWS management console with your administrator user credentials.
3. Verify that you are working in your desired home Region.
4. Choose Set up landing zone.
5. Follow the instructions in the console, accepting all the default values. You will need to type in the email address for your account, a log archive account, and an audit account.
6. Confirm your choices and choose Set up landing zone.
7. AWS Control Tower takes about 30 minutes to set up all of the resources in your landing zone.

For a more detailed version of how to set up AWS Control Tower, including ways to customize your environment, read and follow the procedures in the next few topics.

Note

If you are a first-time customer and you encounter a setup issue, contact AWS Support for diagnostic assistance.
Prerequisite: Automated pre-launch checks for your management account

Before AWS Control Tower sets up the landing zone, it automatically runs a series of pre-launch checks in your account. There's no action required on your part for these checks, which ensure that your management account is ready for the changes that establish your landing zone. Here are the checks that AWS Control Tower runs before setting up a landing zone:

- The existing service limits for the AWS account must be sufficient for AWS Control Tower to launch. For more information, see Limitations and quotas in AWS Control Tower.
- The AWS account must be subscribed to the following AWS services:
  - Amazon Simple Storage Service (Amazon S3)
  - Amazon Elastic Compute Cloud (Amazon EC2)
  - Amazon SNS
  - Amazon Virtual Private Cloud (Amazon VPC)
  - AWS CloudFormation
  - AWS CloudTrail
  - Amazon CloudWatch
  - AWS Config
  - AWS Identity and Access Management (IAM)
  - AWS Lambda

Note

By default, all accounts are subscribed to these services.

Considerations for AWS IAM Identity Center (IAM Identity Center) customers

- If AWS IAM Identity Center (IAM Identity Center) is already set up, the AWS Control Tower home Region must be the same as the IAM Identity Center Region.
- IAM Identity Center can be installed only in the management account of an organization.
Three options apply to your IAM Identity Center directory, based on the identity source you choose:

**IAM Identity Center User Store:** If AWS Control Tower is set up with IAM Identity Center, AWS Control Tower creates groups in the IAM Identity Center directory and provisions access to these groups, for the user you select, for member accounts.

**Active Directory:** If IAM Identity Center for AWS Control Tower is set up with Active Directory, AWS Control Tower does not manage the IAM Identity Center directory. It does not assign users or groups to new AWS accounts.

**External Identity Provider:** If IAM Identity Center for AWS Control Tower is set up with an external identity provider (IdP), AWS Control Tower creates groups in the IAM Identity Center directory and provisions access to these groups for the user you select for member accounts. You can specify an existing user from your external IdP in Account Factory during account creation, and AWS Control Tower gives this user access to the newly vended account when it synchronizes users of the same name between IAM Identity Center and the external IdP. You can also create groups in your external IdP to match the names of the default groups in AWS Control Tower. When you assign users to these groups, these users will have access to your enrolled accounts.

For more information about working with IAM Identity Center and AWS Control Tower see [Things to know about IAM Identity Center accounts and AWS Control Tower](#).

### Considerations for AWS Config and AWS CloudTrail customers

- The AWS account cannot have trusted access enabled in the organization management account for AWS Config or CloudTrail. For information about how to disable trusted access, see [the AWS Organizations documentation on how to enable or disable trusted access](#).

- If you have an existing AWS Config recorder, delivery channel, or aggregation setup in any existing accounts that you plan to enroll in AWS Control Tower, you must modify or remove these configurations before you start enrolling the accounts, after your landing zone is set up. This pre-check doesn't apply to the AWS Control Tower management account during landing zone launch. For more information, see [Enroll accounts that have existing AWS Config resources](#).

- If you are running ephemeral workloads from accounts in AWS Control Tower, you may see an increase in costs associated with AWS Config. Contact your AWS account representative for more specific information about managing these costs.
When you enroll an account into AWS Control Tower, your account is governed by the AWS CloudTrail trail for the AWS Control Tower organization. If you have an existing deployment of a CloudTrail trail in the account, you may see duplicate charges unless you delete the existing trail for the account before you enroll it in AWS Control Tower. For information about organization-level trails and AWS Control Tower, see Pricing.

Note

When launching, AWS Security Token Service (STS) endpoints must be activated in the management account, for all Regions governed by AWS Control Tower. Otherwise, the launch may fail midway through the configuration process.

Getting started with AWS Control Tower from the console

This getting started procedure is intended for AWS Control Tower administrators. Follow this procedure when you're ready to set up your landing zone using the AWS Control Tower console. From start to finish, it should take about half an hour. This procedure requires some prerequisites and three main steps.

If you are an AWS customer currently, but new to AWS Control Tower, you may wish to review the section called Plan your AWS Control Tower landing zone, before you proceed.

Topics
• Step 1: Create your shared account email addresses
• Expectations for landing zone configuration
• Step 2. Configure and launch your landing zone
• Step 3. Review and set up the landing zone

Step 1: Create your shared account email addresses

If you're setting up your landing zone in a new AWS account, see Setting up.

• To set up your landing zone with new shared accounts, AWS Control Tower requires two unique email addresses that aren't already associated with an AWS account. Each of these email
addresses will serve as a collaborative inbox -- a shared email account -- intended for the various users in your enterprise that will do specific work related to AWS Control Tower.

- If you are setting up AWS Control Tower for the first time, and if you are bringing existing security and log archive accounts into AWS Control Tower, you can enter the current email addresses of the existing AWS accounts.

The email addresses are required for:

- **Audit account** – This account is for your team of users that need access to the audit information made available by AWS Control Tower. You can also use this account as the access point for third-party tools that will perform programmatic auditing of your environment to help you audit for compliance purposes.

- **Log archive account** – This account is for your team of users that need access to all the logging information for all of your enrolled accounts within registered OUs in your landing zone.

These accounts are set up in the **Security OU** when you create your landing zone. As a best practice, we recommend that when you perform actions in these accounts, you should use an IAM Identity Center user with the appropriately scoped permissions.

### Note

If you specify existing AWS accounts as your **audit** and **log archive** accounts, the existing accounts must pass some pre-launch checks to ensure that no resources are in conflict with AWS Control Tower requirements. If these checks are not successful, your landing zone setup may not succeed. In particular, the accounts must not have existing AWS Config resources. For more information, see [Considerations for bringing existing security or logging accounts](#).

For the sake of clarity, this **User Guide** always refers to the shared accounts by their default names: **log archive** and **audit**. As you read this document, remember to substitute the customized names you give to these accounts initially, if you choose to customize them. You can view your accounts with their customized names on the **Account details** page.
We are changing our terminology regarding the default names of some AWS Control Tower organizational units (OUs) to align with the AWS multi-account strategy. You may notice some inconsistencies while we are making a transition to improve the clarity of these names. The Security OU was formerly called the Core OU. The Sandbox OU was formerly called the Custom OU.

Expectations for landing zone configuration

The process of setting up your AWS Control Tower landing zone has multiple steps. Certain aspects of your AWS Control Tower landing zone are configurable. Other choices cannot be changed after setup.

Key items to configure during setup

- You can select your top-level OU names during setup, and you also can change OU names after you've set up your landing zone. By default, the top-level OUs are named Security and Sandbox. For more information, see Guidelines to set up a well-architected environment.

- During setup, you can select customized names for the shared accounts that AWS Control Tower creates, called log archive and audit by default, but you cannot change these names after setup. (This is a one-time selection.)

- During setup, you can optionally specify existing AWS accounts for AWS Control Tower to use as audit and log archive accounts. If you plan to specify existing AWS accounts, and if those accounts have existing AWS Config resources, you must delete the existing AWS Config resources before you can enroll the accounts into AWS Control Tower. (This is a one-time selection.)

- If you are setting up for the first time, or if you're upgrading to landing zone version 3.0, you can choose whether to allow AWS Control Tower to set up an organization-level AWS CloudTrail trail for your organization, or you can opt out of trails that are managed by AWS Control Tower and manage your own CloudTrail trails. You can opt into or opt out of organization-level trails that are managed by AWS Control Tower any time you update your landing zone.

- You can optionally set a customized retention policy for your Amazon S3 log bucket and log access bucket, when you set up or update your landing zone.

- You can optionally specify a previously-defined blueprint to use for provisioning customized member accounts from the AWS Control Tower console. You can customize accounts later if you
do not have a blueprint available. See Customize accounts with Account Factory Customization (AFC).

Configuration choices that cannot be undone

- You cannot change your home Region after you've set up your landing zone.
- If you're provisioning Account Factory accounts with VPCs, VPC CIDRs can't be changed after they are created.

Step 2. Configure and launch your landing zone

Before you launch your AWS Control Tower landing zone, determine the most appropriate home Region. For more information, see Administrative tips for landing zone setup.

⚠️ Important

Changing your home Region after you have deployed your AWS Control Tower landing zone requires decommissioning as well as the assistance of AWS Support. This practice is not recommended.

Learn how to configure and launch your landing zone using the AWS CLI in Getting started with AWS Control Tower using APIs.

To configure and launch your landing zone in the console, perform the following series of steps.

Prepare: Navigate to the AWS Control Tower console

2. In the console, verify that you are working in your desired home Region for AWS Control Tower. Then choose Set up your landing zone.

Step 2a. Review and select your AWS Regions

Be sure you've correctly designated the AWS Region that you select for your home Region. After you've deployed AWS Control Tower, you can't change the home Region.
In this section of the setup process, you can add any additional AWS Regions that you require. You can add more Regions at a later time, if needed, and you can remove Regions from governance.

**To select additional AWS Regions to govern**

1. The panel shows you the current Region selections. Open the dropdown menu to see a list of additional Regions available for governance.
2. Check the box next to each Region to bring into governance by AWS Control Tower. Your home Region selection is not editable.

**To deny access to certain Regions**

To deny access to AWS resources and workloads in certain AWS Regions, select Enabled in the section for the Region deny control. By default, the setting for this control is Not enabled.

**Step 2b. Configure your organizational units (OUs)**

If you accept the default names of these OUs, there's no action you need to take for setup to continue. To change the names of the OUs, enter the new names directly in the form field.

- **Foundational OU** – AWS Control Tower relies upon a Foundational OU that is initially named the Security OU. You can change the name of this OU during initial setup and afterward, from the OU details page. This Security OU contains your two shared accounts, which by default are called the log archive account and the audit account.

- **Additional OU** – AWS Control Tower can set up one or more Additional OUs for you. We recommend that you provision at least one Additional OU in your landing zone, besides the Security OU. If this Additional OU is intended for development projects, we recommend that you name it the Sandbox OU, as given in the Guidelines to set up a well-architected environment. If you already have an existing OU in AWS Organizations, you may see the option to skip setting up an Additional OU in AWS Control Tower.

**Step 2c. Configure your shared accounts, logging, and encryption**

In this section of the setup process, the panel shows the default selections for the names of your shared AWS Control Tower accounts. These accounts are an essential part of your landing zone. **Do not move or delete these shared accounts.** You can choose customized names for the audit and log archive accounts during setup. Alternatively, you have a one-time option to specify existing AWS accounts as your shared accounts.
You must provide unique email addresses for your log archive and audit accounts, and you can verify the email address that you previously provided for your management account. Choose the **Edit** button to change the editable default values.

**About the shared accounts**

- **The management account** – The AWS Control Tower management account is part of the Root level. The management account allows for AWS Control Tower billing. The account also has administrator permissions for your landing zone. You cannot create separate accounts for billing and for administrator permissions in AWS Control Tower.

  The email address shown for the management account is not editable during this phase of setup. It is shown as a confirmation, so you can check that you're editing the correct management account, in case you have multiple accounts.

- **The two shared accounts** – You can choose customized names for these two accounts, or bring your own accounts, and you must supply a unique email address for each account, either new or existing. If you choose to have AWS Control Tower create new shared accounts for you, the email addresses must not already have associated AWS accounts.

**To configure the shared accounts, fill in the requested information.**

1. At the console, enter a name for the account initially called the log archive account. Many customers decide to keep the default name for this account.
2. Provide a unique email address for this account.
3. Enter a name for the account initially called the audit account. Many customers choose to call it the Security account.
4. Provide a unique email address for this account.

**Optionally configure log retention**

During this phase of setup, you can customize the log retention policy for Amazon S3 buckets that store your AWS CloudTrail logs in AWS Control Tower, in increments of days or years, up to a maximum of 15 years. If you choose not to customize your log retention, the default settings are one year for standard account logging and 10 years for access logging. This feature also is available when you update or repair your landing zone.
Optionally self-manage AWS account access

You can select whether AWS Control Tower sets up AWS account access with AWS Identity and Access Management (IAM), or whether to self-manage AWS account access—either with AWS IAM Identity Center users, roles, and permissions that you can set up and customize on your own, or with another method such as an external IdP, either for direct account federation or federation to multiple accounts by means of IAM Identity Center. You can change this selection later.

By default, AWS Control Tower sets up AWS IAM Identity Center for your landing zone, in alignment with best-practices guidance defined in Organizing your AWS environment using multiple accounts. Most customers choose the default. Alternative access methods are required sometimes, for regulatory compliance in specific industries or countries, or in AWS Regions where AWS IAM Identity Center is not available.

Selection of identity providers at the account level is not supported. This option applies only for the landing zone as a whole.

For more information, see IAM Identity Center guidance.

Optionally configure AWS CloudTrail trails

As a best practice, we recommend that you set up logging. If you wish to allow AWS Control Tower to set up an organization-level CloudTrail trail and manage it for you, choose Opt in. If you wish to manage logging with your own CloudTrail trails or a third-party logging tool, choose Opt out. Confirm your selection when requested to do so in the console. You can change your selection, and opt into, or opt out of, organization-level trails when you update your landing zone.

You can set up and manage your own CloudTrail trails at any time, including organization-level and account-level trails. If you set up duplicate CloudTrail trails, you may incur duplicate costs when CloudTrail events are logged.

Optionally configure AWS KMS keys

If you wish to encrypt and decrypt your resources with an AWS KMS encryption key, select the checkbox. If you have existing keys, you'll be able to select them from identifiers displayed in a dropdown menu. You can generate a new key by choosing Create a key. You can add or change a KMS key any time you update your landing zone.

When you select Set up landing zone, AWS Control Tower performs a pre-check to validate your KMS key. The key must meet these requirements:
• Enabled
• Symmetric
• Not a multi-Region key
• Has correct permissions added to the policy
• Key is in the management account

You may see an error banner if the key does not meet these requirements. In that case, choose another key or generate a key. Be sure to edit the key's permissions policy, as described in the next section.

**Update the KMS key policy**

Before you can update a KMS key policy, you must create a KMS key. For more information, see [Creating a key policy](https://docs.aws.amazon.com/kms/latest/developerguide/key-policies.html) in the *AWS Key Management Service Developer Guide*.

To use a KMS key with AWS Control Tower, you must update the default KMS key policy by adding the minimum required permissions for AWS Config and AWS CloudTrail. As a best practice, we recommend that you include the minimum required permissions in any policy. When updating a KMS key policy, you can add permissions as a group in a single JSON statement or line by line.

The procedure describes how to update the default KMS key policy in the AWS KMS console by adding policy statements that allow AWS Config and CloudTrail to use AWS KMS for encryption. The policy statements require that you include the following information:

- **YOUR-MANAGEMENT-ACCOUNT-ID** – the ID of the management account in which AWS Control Tower will be set up.
- **YOUR-HOME-REGION** – the home Region that you will select when setting up AWS Control Tower.
- **YOUR-KMS-KEY-ID** – the KMS key ID that will be used with the policy.

**To update the KMS key policy**

1. Open the AWS KMS console at [https://console.aws.amazon.com/kms](https://console.aws.amazon.com/kms)
2. From the navigation pane, choose **Customer managed keys**.
3. In the table, select the key that you want to edit.
4. In the **Key policy** tab, make sure that you can view the key policy. If you can't view the key policy, choose **Switch to policy view**.
5. Choose **Edit**, and update the default KMS key policy by adding the following policy statements for AWS Config and CloudTrail.

**AWS Config policy statement**

```json
{
    "Sid": "Allow Config to use KMS for encryption",
    "Effect": "Allow",
    "Principal": {
        "Service": "config.amazonaws.com"
    },
    "Action": [
        "kms:Decrypt",
        "kms:GenerateDataKey"
    ],
}
```

**CloudTrail policy statement**

```json
{
    "Sid": "Allow CloudTrail to use KMS for encryption",
    "Effect": "Allow",
    "Principal": {
        "Service": "cloudtrail.amazonaws.com"
    },
    "Action": [
        "kms:GenerateDataKey*",
        "kms:Decrypt"
    ],
    "Condition": {
        "StringEquals": {
        },
        "StringLike": {
        }
    }
}
```
Choose **Save changes**.

### Example KMS key policy

The following example policy shows what your KMS key policy might look like after you add the policy statements that grant AWS Config and CloudTrail the minimum required permissions. The example policy doesn't include your default KMS key policy.

```json
{
    "Version": "2012-10-17",
    "Id": "CustomKMSPolicy",
    "Statement": [
        
        
        
    ],
    
    "Sid": "Allow Config to use KMS for encryption",
    "Effect": "Allow",
    "Principal": {
        "Service": "config.amazonaws.com"
    },
    "Action": [
        "kms:Decrypt",
        "kms:GenerateDataKey"
    ],
}  
,

{
    "Sid": "Allow CloudTrail to use KMS for encryption",
    "Effect": "Allow",
    "Principal": {
        "Service": "cloudtrail.amazonaws.com"
    },
    "Action": [
        "kms:GenerateDataKey*",
        "kms:Decrypt"
    ],
}
```
To view other example policies, see the following pages:

- **Granting encrypt permissions** in the *AWS CloudTrail User Guide*.
- **Required Permissions for the KMS Key When Using Service-Linked RolesS3 Bucket Delivery** in the *AWS Config Developer Guide*.

### Protect against attackers

For more information about how to help protect against attackers when you grant permissions to other AWS service principals, see [Optional conditions for your role trust relationships](#). By adding certain conditions to your policies, you can help prevent a specific type of attack, known as a *confused deputy* attack, which occurs if an entity coerces a more-privileged entity to perform an action, such as with cross-service impersonation. For general information about policy conditions, also see [Specifying conditions in a policy](#).

The AWS Key Management Service (AWS KMS) allows you to create multi-Region KMS keys and asymmetric keys; however, AWS Control Tower does not support multi-Region keys or asymmetric keys. AWS Control Tower performs a pre-check of your existing keys. You may see an error message if you select a multi-Region key or an asymmetric key. In that case, generate another key for use with AWS Control Tower resources.

For more information about AWS KMS, see [the AWS KMS Developer Guide](#).

Note that customer data in AWS Control Tower is encrypted at rest, by default, using SSE-S3.
Optionally configure and create customized member accounts

When you follow the Create account workflow to add your member accounts, you can optionally specify a previously-defined blueprint to use for provisioning customized member accounts from the AWS Control Tower console. You can customize accounts later if you do not have a blueprint available. See Customize accounts with Account Factory Customization (AFC).

Step 3. Review and set up the landing zone

The next section in the setup shows you the permissions that AWS Control Tower requires for your landing zone. Choose a checkbox to expand each topic. You'll be asked to agree to these permissions, which may affect multiple accounts, and to agree to the overall Terms of Service.

To finalize

1. At the console, review the Service permissions, and when you're ready, choose I understand the permissions AWS Control Tower will use to administer AWS resources and enforce rules on my behalf.
2. To finalize your selections and initialize launch, choose Set up landing zone.

This series of steps starts the process of setting up your landing zone, which can take about thirty minutes to complete. During setup, AWS Control Tower creates your Root level, the Security OU, and the shared accounts. Other AWS resources are created, modified, or deleted.

⚠️ Confirm SNS subscriptions

The email address you provided for the audit account will receive AWS Notification – Subscription Confirmation emails from every AWS Region supported by AWS Control Tower. To receive compliance emails in your audit account, you must choose the Confirm subscription link within each email from each AWS Region supported by AWS Control Tower.

Getting started with AWS Control Tower using APIs

This getting started procedure is intended for AWS Control Tower administrators. This procedure requires some prerequisites and includes two main steps.
In this procedure, you will use APIs from AWS Control Tower and other AWS services to configure and launch a landing zone. These APIs allow you to create an AWS Control Tower environment programmatically, either through the AWS CloudFormation console, or through the AWS CLI.

Before you launch your AWS Control Tower landing zone, perform these prerequisite tasks:

- Determine the most appropriate home Region. For more information, see Administrative tips for landing zone setup.
- Review Prerequisite: Automated pre-launch checks for your management account to learn about the automated pre-launch checks that make sure your management account is ready for changes that establish your landing zone.

Topics

- Expectations for landing zone configuration with APIs
- Step 1: Configure your landing zone
- Step 2: Launch your landing zone
- Identifying your landing zone
- Update your landing zone
- Reset the landing zone to resolve drift
- Decommission your landing zone
- Launching a landing zone using AWS CloudFormation

Expectations for landing zone configuration with APIs

The process of setting up your AWS Control Tower landing zone has multiple steps. Certain aspects of your AWS Control Tower landing zone are configurable. Other choices cannot be changed after setup.

Key items to configure during setup

- You can select your Foundational OU names during setup, and you also can change OU names after you've set up your landing zone. By default, the Foundational OUs are named Security and Sandbox. For more information, see Guidelines to set up a well-architected environment.
- During setup, you can select customized names for the shared accounts that AWS Control Tower creates, called log archive and audit by default, but you cannot change these names after setup. (This is a one-time selection.)
During setup, you can optionally specify existing AWS accounts for AWS Control Tower to use as audit and log archive accounts. If you plan to specify existing AWS accounts, and if those accounts have existing AWS Config resources, you must delete the existing AWS Config resources before you can enroll the accounts into AWS Control Tower. (This is a one-time selection.)

If you are setting up for the first time, or if you're upgrading to landing zone version 3.0, you can choose whether to allow AWS Control Tower to set up an organization-level AWS CloudTrail trail for your organization, or you can opt out of trails that are managed by AWS Control Tower and manage your own CloudTrail trails. You can opt into or opt out of organization-level trails that are managed by AWS Control Tower any time you update your landing zone.

You can optionally set a customized retention policy for your Amazon S3 log bucket and log access bucket, when you set up or update your landing zone.

You can optionally specify a previously-defined blueprint to use for provisioning customized member accounts from the AWS Control Tower console. You can customize accounts later if you do not have a blueprint available. See Customize accounts with Account Factory Customization (AFC).

Configuration choices that cannot be undone

- You cannot change your home Region after you've set up your landing zone.
- If you're provisioning Account Factory accounts with VPCs, VPC CIDRs can't be changed after they are created.

**Step 1: Configure your landing zone**

The process of setting up your AWS Control Tower landing zone has multiple steps. Certain aspects of your AWS Control Tower landing zone are configurable, but other choices cannot be changed after setup. To learn more about these important considerations prior to launching your landing zone, review Expectations for landing zone configuration.

Before using the AWS Control Tower landing zone APIs, you must first call APIs from other AWS services to configure your landing zone prior to launch. This includes creating a new AWS Organizations organization and setting up your shared account email addresses, and creating an IAM role or user with the required permissions to call the landing zone APIs.

**To create the organization:**
1. Call the AWS Organizations CreateOrganization API and enable all features to create the Foundational OU. AWS Control Tower initially names this the Security OU. This Security OU contains your two shared accounts, which by default are called the log archive account and the audit account.

```
aws organizations create-organization --feature-set ALL
```

AWS Control Tower can set up one or more Additional OUs. We recommend that you provision at least one Additional OU in your landing zone, besides the Security OU. If this Additional OU is intended for development projects, we recommend that you name it the Sandbox OU, as given in the AWS multi-account strategy for your AWS Control Tower landing zone.

To create the shared accounts:

To set up your landing zone with new shared accounts, AWS Control Tower requires two unique email addresses that aren't already associated with an AWS account. Each of these email addresses will serve as a collaborative inbox -- a shared email account -- intended for the various users in your enterprise that will do specific work related to AWS Control Tower.

If you are setting up AWS Control Tower for the first time, and if you are bringing existing security and log archive accounts into AWS Control Tower, you can use the current email addresses of the existing AWS accounts.

1. Call the AWS Organizations CreateAccount API to create the Log archive account and Audit account in the Security OU.

```
aws organizations create-account --email mylog@example.com --account-name "Logging Account"
```

```
aws organizations create-account --email mysecurity@example.com --account-name "Security Account"
```

2. (Optional) Check the status of the CreateAccount operation using the AWS Organizations DescribeAccount API.

3. Create the following IAM service roles to enable AWS Control Tower to perform the API calls required to set up your landing zone:

- AWSControlTowerAdmin
• **AWSControlTowerCloudTrailRole**
• **AWSControlTowerStackSetRole**
• **AWSControlTowerAggregatorRoleForOrganizations**

For more information about these roles and their policies, see [Using identity-based policies (IAM policies) for AWS Control Tower](#).

**To create an IAM role:**

1. Create an IAM role with the necessary permissions to call all landing zone APIs. Alternatively, you can create an IAM user and assign the necessary permissions.

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "controltower:CreateLandingZone",
        "controltower:UpdateLandingZone",
        "controltower:ResetLandingZone",
        "controltower:DeleteLandingZone",
        "controltower:GetLandingZoneOperation",
        "controltower:GetLandingZone",
        "controltower:ListLandingZones",
        "controltower:ListTagsForResource",
        "controltower:TagResource",
        "controltower:UntagResource",
        "servicecatalog:*",
        "organizations:*",
        "sso:*",
        "sso-directory:*",
        "logs:*",
        "cloudformation:*",
        "kms:*",
        "iam:GetRole",
        "iam:CreateRole",
        "iam:GetSAMLProvider",
        "iam:CreateSAMLProvider",
        "iam:CreateServiceLinkedRole",
        "iam:ListRolePolicies",
    }]
  }
}
```
Step 2: Launch your landing zone

The AWS Control Tower CreateLandingZone API requires a landing zone version and a manifest file as input parameters. You can use the manifest file to configure the following features:

- Optionally configure log retention
- Optionally self-manage AWS account access
- Optionally configure AWS CloudTrail trails
- Optionally configure AWS KMS keys

After compiling your manifest file, you're ready to create a new landing zone.

⚠️ Note

AWS Control Tower does not support the Region deny control when using APIs to configure and launch a landing zone. After successfully launching your landing zone using APIs, you can use the AWS Control Tower console to Configure the Region deny control.

1. Call the AWS Control Tower CreateLandingZone API. This API requires a landing zone version and a manifest file as input.

```bash
aws controltower create-landing-zone --landing-zone-version 3.2 --manifest "file://LandingZoneManifest.json"
```

Example LandingZoneManifest.json manifest:
```json
{
  "governedRegions": ["us-west-2","us-west-1"],
  "organizationStructure": {
    "security": {
      "name": "CORE"
    },
    "sandbox": {
      "name": "Sandbox"
    }
  },
  "centralizedLogging": {
    "accountId": "222222222222",
    "configurations": {
      "loggingBucket": {
        "retentionDays": 60
      },
      "accessLoggingBucket": {
        "retentionDays": 60
      },
      "kmsKeyArn": "arn:aws:kms:us-west-1:123456789123:key/e84XXXXX-6bXX-49XX-9eXX-ecfXXXXXXXXX"
    },
    "enabled": true
  },
  "securityRoles": {
    "accountId": "333333333333"
  },
  "accessManagement": {
    "enabled": true
  }
}
```

**Note**

As shown in the example, the **AccountId** for the CentralizedLogging and SecurityRoles accounts must be different.

**Output:**

```json
{
}
```
2. Call the GetLandingZoneOperation API to check the status of the CreateLandingZone operation. The GetLandingZoneOperation API returns a status of SUCCEEDED, FAILED, or IN_PROGRESS.

aws controltower get-landing-zone-operation --operation-identifier "55XXXXX-eXXX-4XXX-aXXX-44XXXXXXXXXX"

Output:

{
  "operationDetails": {
    "operationType": "CREATE",
    "startTime": "Thu Nov 09 20:39:19 UTC 2023",
    "endTime": "Thu Nov 09 21:02:01 UTC 2023",
    "status": "SUCCEEDED"
  }
}

3. When the status returns as SUCCEEDED, you can call the GetLandingZone API to review the landing zone configuration.

aws controltower get-landing-zone --landing-zone-identifier "arn:aws:controltower:us-east-1:123456789123:landingzone/1A2B3C4D5E6F7G8H"

Output:

{
  "landingZone": {
    "version": "3.2",
    "manifest": "{"accessManagement": {"enabled": true}, "centralizedLogging": {
      "accountId": "id",
      "configurations": {
        "accessLoggingBucket": {
          "retentionDays": 3650,
          "loggingBucket": {
            "retentionDays": 365,
            "enabled": true
          }
        },
        "governedRegions": [{"us-east-1"}, "organizationStructure": {
          "sandbox": {"name": "SandboxIsBest"},
          "security": {"name": "SecurityIsBest"},
          "securityRoles": {
            "accountId": "id"
          }
        },
        "arn": "arn:aws:controltower:us-east-1:123456789123:landingzone/1A2B3C4D5E6F7G8H",
        "arn": "arn:aws:controltower:us-east-1:123456789123:landingzone/1A2B3C4D5E6F7G8H"
      }
    }
  }
}
Identifying your landing zone

Calling ListLandingZones can help you determine if your account is already set up with AWS Control Tower. This API returns one landing zone identifier (ARN) across any commercial region, regardless of the landing zone's home region. Landing zone ARNs are regionally unique.

For opt-in regions, this API returns the landing zone identifier only if the landing zone is called in the same region as its home region. For example, if you have a landing zone set up in us-west-2 and you call ListLandingZone in us-east-1.

```
aws controltower list-landing-zones --region us-east-1
```

**Output:**

```
{
    "landingZones": [
        "arn": "arn:aws:controltower:us-west-2:123456789123:landingzone/1A2B3C4D5E6F7G8H"
    ]
}
```

Update your landing zone

When a new landing zone version is available, or to make other updates to your landing zone configuration, you can call the UpdateLandingZone API and reference an updated manifest file. This API returns an OperationIdentifier, which you can then use when calling the GetLandingZone API to check the update operation's status.

**To update the landing zone**

1. Call the AWS Control Tower UpdateLandingZone API and refer to the updated landing zone version or your updated manifest.

LandingZoneManifest.json:

```json
{
    "governedRegions": ["us-west-2","us-west-1"],
    "organizationStructure": {
        "security": {
            "name": "CORE"
        },
        "sandbox": {
            "name": "Sandbox"
        }
    },
    "centralizedLogging": {
        "accountId": "222222222222",
        "configurations": {
            "loggingBucket": {
                "retentionDays": 2555
            },
            "accessLoggingBucket": {
                "retentionDays": 2555
            },
            "kmsKeyArn": "arn:aws:kms:us-west-1:123456789123:key/e84XXXXX-6bXX-49XX-9eXX-ecfXXXXXXXXX"
        },
        "enabled": true
    },
    "securityRoles": {
        "accountId": "333333333333"
    },
    "accessManagement": {
        "enabled": true
    }
}
```

Output:

```json
{
}
```
Optionally Re-register OU to update accounts

For registered AWS Control Tower OUs with fewer than 300 accounts, you can use the AWS Control Tower console access the OU page in the dashboard and select Re-register OU to update the accounts in that OU.

Reset the landing zone to resolve drift

When you create your landing zone, the landing zone and all the organizational units (OUs), accounts, and resources are compliant with the governance rules enforced by your chosen controls. As you and your organization members use the landing zone, changes in this compliance status may occur. These changes are called drift.

To identify if your landing zone is in drift, you can call the GetLandingZone API. This API returns the landing zone's **drift status** of DRIFTED or IN_SYNC.

To resolve drift within your landing zone you can use the ResetLandingZone API to reset the landing zone back to its original configuration. For example, AWS Control Tower enables IAM Identity Center by default to help you manage your AWS accounts-- but if you configure your original landing zone parameters with IAM Identity Center disabled, calling ResetLandingZone maintains that disabled IAM Identity Center configuration.

You can only use the ResetLandingZone API if you are using the latest available landing zone version. You can call the GetLandingZone API and compare your landing zone version with the **latest available version**. If necessary, you can Update your landing zone so your landing zone uses the latest available version.

1. Call the GetLandingZone API. If the API returns a **drift status** of DRIFTED, your landing zone is in drift.
2. Call the ResetLandingZone API to reset your landing zone to its original configuration.

```bash
aws controltower reset-landing-zone --landing-zone-identifier
"arn:aws:controltower:us-west-2:123456789123:landingzone/1A2B3C4D5E6F7G8H"
```
Decommission your landing zone

The process of cleaning up all of a landing zones resources is referred to as *decommissioning* a landing zone.

**Important**

We strongly recommend that you perform this decommissioning process only if you intend to stop using your landing zone. It is not possible to re-create your existing landing zone after you've decommissioned it.

For more details about decommissioning a landing zone, including important information about how AWS Control Tower handles your data and existing AWS Organizations, review [Walkthrough: Decommission an AWS Control Tower Landing Zone](#).

To decommission a landing zone, call DeleteLandingZone API. This API returns an OperationIdentifier, which you can then use when calling the GetLandingZone API to check the delete operation's status.

```bash
aws controltower delete-landing-zone --landing-zone-identifier "arn:aws:controltower:us-west-2:123456789012:landingzone/1A2B3C4D5E6F7G8H"
```

**Output:**

```json
{
    "operationIdentifier": "55XXXXXX-e2XX-41XX-a7XX-446XXXXXXXXX"
}
```
Launching a landing zone using AWS CloudFormation

You can configure and launch a landing zone with AWS CloudFormation either through the AWS CloudFormation console, or through the AWS CLI. This section provides instructions and examples to launch a landing zone using APIs through AWS CloudFormation.

Topics

- Prerequisites for launching a landing zone using AWS CloudFormation
- Create a new landing zone using AWS CloudFormation
- Manage an existing landing zone using AWS CloudFormation

Prerequisites for launching a landing zone using AWS CloudFormation

1. From the AWS CLI, use the AWS Organizations CreateAccount API to create an organization and enable all features.

   For more detailed instructions, review Step 1: Configure your landing zone.

2. From the AWS CloudFormation console or using the AWS CLI, deploy a AWS CloudFormation template that creates the following resources in the management account:

   - Log Archive account (sometimes called the "Logging" account)
   - Audit account (sometimes called the "Security" account)
   - The AWSControlTowerAdmin, AWSControlTowerCloudTrailRole, AWSControlTowerConfigAggregatorRoleForOrganizations, and AWSControlTowerStackSetRole service roles.

   For information about how AWS Control Tower uses these roles to perform landing zone API calls, see Step 1: Configure your landing zone.

Parameters:

- **LoggingAccountEmail:**
  - Type: String
  - Description: The email Id for centralized logging account

- **LoggingAccountName:**
  - Type: String
  - Description: Name for centralized logging account

- **SecurityAccountEmail:**
Type: String
Description: The email Id for security roles account
SecurityAccountName:
  Type: String
  Description: Name for security roles account
Resources:
  MyOrganization:
    Type: 'AWS::Organizations::Organization'
    Properties:
      FeatureSet: ALL
  LoggingAccount:
    Type: 'AWS::Organizations::Account'
    Properties:
      AccountName: !Ref LoggingAccountName
      Email: !Ref LoggingAccountEmail
  SecurityAccount:
    Type: 'AWS::Organizations::Account'
    Properties:
      AccountName: !Ref SecurityAccountName
      Email: !Ref SecurityAccountEmail
AWSControlTowerAdmin:
  Type: 'AWS::IAM::Role'
  Properties:
    RoleName: AWSControlTowerAdmin
    AssumeRolePolicyDocument:
      Version: 2012-10-17
      Statement:
        - Effect: Allow
          Principal:
            Service: controltower.amazonaws.com
          Action: 'sts:AssumeRole'
          Path: '/service-role/'
          ManagedPolicyArns:
            - !Sub arn:${AWS::Partition}:iam::aws:policy/service-role/
          AWSControlTowerServiceRolePolicy
    AWSControlTowerAdminPolicy:
      Type: 'AWS::IAM::Policy'
      Properties:
        PolicyName: AWSControlTowerAdminPolicy
        PolicyDocument:
          Version: 2012-10-17
          Statement:
            - Effect: Allow
Launching a landing zone using AWS CloudFormation

```json
Action: 'ec2:DescribeAvailabilityZones'
Resource: '*'

Roles:
  - !Ref AWSControlTowerAdmin

AWSControlTowerCloudTrailRole:
  Type: 'AWS::IAM::Role'
  Properties:
    RoleName: AWSControlTowerCloudTrailRole
    AssumeRolePolicyDocument:
      Version: 2012-10-17
      Statement:
        - Effect: Allow
          Principal:
            Service: cloudtrail.amazonaws.com
          Action: 'sts:AssumeRole'
          Path: '/service-role/

AWSControlTowerCloudTrailRolePolicy:
  Type: 'AWS::IAM::Policy'
  Properties:
    PolicyName: AWSControlTowerCloudTrailRolePolicy
    PolicyDocument:
      Version: 2012-10-17
      Statement:
        - Action:
            - 'logs:CreateLogStream'
            - 'logs:PutLogEvents'
          Resource: !Sub >-
            arn:${AWS::Partition}:logs:*:*:log-group:aws-controltower/
          CloudTrailLogs:*
            Effect: Allow
          Roles:
            - !Ref AWSControlTowerCloudTrailRole

AWSControlTowerConfigAggregatorRoleForOrganizations:
  Type: 'AWS::IAM::Role'
  Properties:
    RoleName: AWSControlTowerConfigAggregatorRoleForOrganizations
    AssumeRolePolicyDocument:
      Version: 2012-10-17
      Statement:
        - Effect: Allow
          Principal:
            Service: config.amazonaws.com
          Action: 'sts:AssumeRole'
          Path: '/service-role/
```

Launching a landing zone using AWS CloudFormation
Launching a landing zone using AWS CloudFormation

ManagedPolicyArns:
- !Sub arn:${AWS::Partition}:iam::aws:policy/service-role/

AWSConfigRoleForOrganizations
  AWSControlTowerStackSetRole:
    Type: 'AWS::IAM::Role'
    Properties:
      RoleName: AWSControlTowerStackSetRole
      AssumeRolePolicyDocument:
        Version: 2012-10-17
        Statement:
          - Effect: Allow
            Principal:
              Service: cloudformation.amazonaws.com
            Action: 'sts:AssumeRole'
            Path: '/service-role/'
      AWSControlTowerStackSetRolePolicy:
        Type: 'AWS::IAM::Policy'
        Properties:
          PolicyName: AWSControlTowerStackSetRolePolicy
          PolicyDocument:
            Version: 2012-10-17
            Statement:
              - Action: 'sts:AssumeRole'
                Resource: !Sub 'arn:${AWS::Partition}:iam::*:role/
                  AWSControlTowerExecution'
                Effect: Allow
            Roles:
              - !Ref AWSControlTowerStackSetRole

Outputs:
  LogAccountId:
    Value:
      Fn::GetAtt: LoggingAccount.AccountId
    Export:
      Name: LogAccountId
  SecurityAccountId:
    Value:
      Fn::GetAtt: SecurityAccount.AccountId
    Export:
      Name: SecurityAccountId
Create a new landing zone using AWS CloudFormation

From the AWS CloudFormation console or using the AWS CLI, deploy the following AWS CloudFormation template to create a landing zone.

```
Parameters:
Version:
  Type: String
  Description: The version number of Landing Zone
GovernedRegions:
  Type: List
  Description: List of governed regions
SecurityOuName:
  Type: String
  Description: The security Organizational Unit name
SandboxOuName:
  Type: String
  Description: The sandbox Organizational Unit name
CentralizedLoggingAccountId:
  Type: String
  Description: The AWS account ID for centralized logging
SecurityAccountId:
  Type: String
  Description: The AWS account ID for security roles
LoggingBucketRetentionPeriod:
  Type: Number
  Description: Retention period for centralized logging bucket
AccessLoggingBucketRetentionPeriod:
  Type: Number
  Description: Retention period for access logging bucket
KMSKey:
  Type: String
  Description: KMS key ARN used by CloudTrail and Config service to encrypt data in logging bucket
Resources:
MyLandingZone:
  Type: 'AWS::ControlTower::LandingZone'
  Properties:
    Version:
      Ref: Version
    Tags:
      - Key: "keyname1"
```
Manage an existing landing zone using AWS CloudFormation

You can use AWS CloudFormation to manage a landing zone that you have already launched by importing the landing zone in a new or existing AWS CloudFormation stack. Review [Bringing existing resources into CloudFormation management](#) for details and instructions.

To detect and resolve drift within a landing zone, you can use the AWS Control Tower console, the AWS CLI, or the [ResetLandingZone API](#).
Next steps

Now that your landing zone is set up, it's ready for use.

To learn more about how you can use AWS Control Tower, see the following topics:

- For recommended administrative practices, see [Best Practices](#).
- You can set up IAM Identity Center users and groups with specific roles and permissions. For recommendations, see [Recommendations for setting up groups, roles, and policies](#).
- To begin enrolling organizations and accounts from your AWS Organizations deployments, see [Govern existing organizations and accounts](#).
- Your end users can provision their own AWS accounts in your landing zone using Account Factory. For more information, see [Permissions for configuring and provisioning accounts](#).
- To assure [Compliance Validation for AWS Control Tower](#), your central cloud administrators can review log archives in the Log Archive account, and designated third-party auditors can review audit information in the Audit (shared) account, which is a member of the Security OU.
- To learn more about the capabilities of AWS Control Tower, see [Related information](#).
- Try visiting a [curated list of YouTube videos](#) that explain more about how to use AWS Control Tower functionality.
- From time to time, you may need to update your landing zone to get the latest backend updates, the latest controls, and to keep your landing zone up-to-date. For more information, see [Configuration update management in AWS Control Tower](#).
- If you encounter issues while using AWS Control Tower, see [Troubleshooting](#).

⚠️ Important

If you have not yet enabled MFA for your account's root user, do so now. For more information about best practices for the root user, see [Best practices to protect your account's root user](#).
Limitations and quotas in AWS Control Tower

This chapter covers the AWS service limitations and quotas that you should keep in mind as you use AWS Control Tower. If you're unable to set up your landing zone due to a service quota issue, contact AWS Support.

For more information about limitations that are specific to controls, see Control limitations.

Limitations in AWS Control Tower

This section describes known limitations and unsupported use cases in AWS Control Tower.

- AWS Control Tower has overall concurrency limitations. In general, one operation at a time is permitted. Two exceptions to this limitation are allowed:
  - Optional controls can be activated and deactivated concurrently, through an asynchronous process. Up to ten (10) control-related operations at a time can be in progress, in total, no matter if they are called from the console or from an API.
  - Accounts can be provisioned, updated, and enrolled concurrently in Account Factory, through an asynchronous process, with up to five (5) account-related operations in progress simultaneously. Unmanaging accounts must be performed one account at a time.
- Email addresses of shared accounts in the Security OU can be changed, but you must update your landing zone to see these changes in the AWS Control Tower console.
- A limit of five (5) SCPs per OU applies to OUs in your AWS Control Tower landing zone.
- AWS Control Tower supports up to 10,000 accounts in your landing zone's organization, divided among all of your OUs.
- Existing OUs with over 300 directly nested accounts cannot be registered or re-registered in AWS Control Tower. For more information about limitations with registering OUs, see Regions and stack set limitations.
- CfCT is unavailable in these AWS Regions, because some dependencies are not available:
  - Asia Pacific (Jakarta and Osaka)
  - Israel (Tel Aviv)
  - Middle East (UAE)
  - Europe (Spain)
  - Asia Pacific (Hyderabad)
• Europe (Zurich)

You can deploy and manage resources in these Regions with CfCT, if you deploy CfCT to your AWS Control Tower home Region, but you cannot build CfCT in these Regions.

• AFT is not available in the following AWS Regions, because some dependencies are not available:
  • Israel (Tel Aviv)
  • Middle East (UAE)
  • Europe (Spain)
  • Asia Pacific (Hyderabad)
  • Europe (Zurich)

• The following Regions do not support IAM Identity Center.
  • Middle East (UAE) Region, me-central-1
  • Asia Pacific (Hyderabad) Region, ap-south-2

For more information about AWS Regions and support for IAM Identity Center, see Regions and endpoints in the AWS Identity and Access Management User Guide.

• When calling a control API to activate or deactivate a control, the limit for EnableControl and DisableControl updates in AWS Control Tower is ten (10) concurrent operations. You may need to adjust your code to wait for completions.

• When you are provisioning accounts with AFC, with blueprints that are based in Terraform, you can deploy those blueprints to only one AWS Region. By default, AWS Control Tower deploys to the home Region.

You can contact AWS Support to request a limit increase for some resources in AWS Control Tower. For example, you can request a limit increase from five of up to ten concurrent account-related operations. Some AWS Control Tower performance characteristics may change after a limit increase. For example, it may take longer to update an OU when you have more accounts in it. Or it may take longer to complete an action on OU with five SCPs than with three SCPs.

**Video: Automate requests for service limit increase**

This video (7:24) describes how to automate service limit increases for deployments in AWS Control Tower. It also shows how to automate enrollment of new accounts into AWS Enterprise support for your organization. For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.
Video Walkthrough of Managing Nested OUs in AWS Control Tower.

When provisioning new accounts in this environment, you can use lifecycle events to trigger automated requests for service limit increases in specified AWS Regions.

More information about AWS quotas is available in the AWS General Reference.

Control behavior also is limited in case of mixed governance. For more information, see Avoid mixed governance when configuring Regions.

Control limitations

If you modify AWS Control Tower resources, such as an SCP, or remove any AWS Config resource, such as a Config recorder or aggregator, AWS Control Tower can no longer guarantee that the controls are functioning as designed. Therefore, the security of your multi-account environment may be compromised. The AWS shared responsibility model of security is applicable to any such changes you may make.

Note

AWS Control Tower helps maintain the integrity of your environment by resetting the SCPs of the controls to their standard configuration when you update your landing zone. Changes that you may have made to SCPs are replaced by the standard version of the control, by design.

Some controls in AWS Control Tower do not operate in certain AWS Regions where AWS Control Tower is available, because those Regions do not support the required underlying functionality. This limitation affects certain detective controls, certain proactive controls, and certain controls in the Security Hub Service-managed Standard: AWS Control Tower. For more information about Regional availability, see the Regional services list documentation and the Security Hub controls reference documentation.

For more information about how AWS Control Tower manages the limitations of Regions and controls, see Considerations for activating AWS opt-in Regions.

You can view the Regions for each control in the AWS Control Tower console.
The following AWS Regions do not support controls that are part of the Security Hub Service-managed Standard: AWS Control Tower.

- Asia Pacific (Hong Kong) Region, ap-east-1
- Asia Pacific (Jakarta) Region, ap-southeast-3
- Asia Pacific (Osaka) Region, ap-northeast-3
- Europe (Milan) Region, eu-south-1
- Africa (Cape Town) Region, af-south-1
- Middle East (Bahrain) Region, me-south-1
- Israel (Tel Aviv), il-central-1
- Middle East (UAE) Region, me-central-1
- Europe (Spain) Region, eu-south-2
- Asia Pacific (Hyderabad) Region, ap-south-2
- Europe (Zurich) Region, eu-central-2
- Asia Pacific (Melbourne) Region, ap-southeast-4

For a list of AWS Regions that do not support certain controls that are part of the AWS Security Hub Service-Managed Standard AWS Control Tower, see Unsupported Regions.

The following table shows proactive controls that are not supported in certain AWS Regions.

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Unsupported regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.REDSHIFT.PR.5</td>
<td>ap-southeast-4, ap-south-2, ap-southeast-3, eu-central-2, eu-south-2, il-central-1, me-central-1</td>
</tr>
<tr>
<td>CT.DAX.PR.2</td>
<td>us-west-1</td>
</tr>
<tr>
<td>CT.GLUE.PR.2</td>
<td>Unsupported</td>
</tr>
</tbody>
</table>

The following table shows AWS Control Tower detective controls that are not supported in certain AWS Regions.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Unsupported regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
<td>ap-northeast-3, ap-southeast-3, il-central-1, ap-southeast-4</td>
</tr>
<tr>
<td>AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
<td>ap-northeast-3, ap-southeast-3</td>
</tr>
<tr>
<td>AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
<td>ap-northeast-3, eu-south-2</td>
</tr>
<tr>
<td>AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
<td>ap-northeast-3, ap-southeast-3, af-south-1, eu-south-1, il-central-1, me-central-1, eu-south-2, ap-south-2, eu-central-2, ap-southeast-4</td>
</tr>
<tr>
<td>AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
<td>ap-northeast-3, ap-southeast-3, eu-south-2</td>
</tr>
<tr>
<td>AWS-GR_NO_UNRESTRICTED ROUTE_TO_IGW</td>
<td>ap-northeast-3, ap-southeast-3, ap-south-2, eu-south-2</td>
</tr>
<tr>
<td>AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS</td>
<td>ap-northeast-3, ap-southeast-3, af-south-1, eu-south-1, il-central-1, me-central-1, eu-south-2, ap-south-2, eu-central-2, ap-southeast-4</td>
</tr>
<tr>
<td>AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
<td>ap-northeast-3</td>
</tr>
<tr>
<td>AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
<td>ap-northeast-3, ap-southeast-3, af-south-1, eu-south-1, us-west-1, il-central-1, me-central-1, eu-south-2, ap-south-2, eu-central-2, ap-southeast-4</td>
</tr>
<tr>
<td>AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
<td>ap-northeast-3, ap-southeast-3, il-central-1, eu-south-2, ap-south-2, eu-central-2, ap-southeast-4</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Unsupported regions</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AWS-GR_RESTRICTED_SSH</td>
<td>ap-northeast-3, ap-southeast-3, af-south-1, eu-south-1, il-central-1, me-central-1, eu-south-2, ap-south-2, eu-central-2,</td>
</tr>
<tr>
<td>AWS-GR_DMS_REPLICATION_NOT_PUBLIC</td>
<td>ap-northeast-3, ap-southeast-3, af-south-1, eu-south-1, il-central-1, me-central-1, eu-south-2, ap-south-2, eu-central-2, ap-southeast-4</td>
</tr>
<tr>
<td>AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
<td>ap-northeast-3, ap-southeast-3, af-south-1, eu-south-1, il-central-1, eu-south-2, eu-central-1-2, ap-southeast-4</td>
</tr>
<tr>
<td>AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
<td>ap-northeast-3</td>
</tr>
<tr>
<td>AWS-GR_ENCRYPTED_VOLUMES</td>
<td>ap-northeast-3, af-south-1, eu-south-1, il-central-1</td>
</tr>
<tr>
<td>AWS-GR_RESTRICTED_COMMON_PORTS</td>
<td>ap-northeast-3, ap-southeast-3, af-south-1, eu-south-1, il-central-1, me-central-1, eu-south-2, eu-central-2</td>
</tr>
<tr>
<td>AWS-GR_IAM_USER_MFA_ENABLED</td>
<td>il-central-1, me-central-1, eu-south-2, ap-south-2, eu-central-2, ap-southeast-4</td>
</tr>
<tr>
<td>AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
<td>il-central-1, me-central-1, eu-south-2, ap-south-2, eu-central-2, ap-southeast-4</td>
</tr>
<tr>
<td>AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
<td>il-central-1</td>
</tr>
<tr>
<td>AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
<td>il-central-1, me-central-1</td>
</tr>
<tr>
<td>AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
<td>il-central-1, eu-south-2, eu-central-2</td>
</tr>
<tr>
<td>AWS-GR_RDS_STORAGE_ENCRYPTED</td>
<td>eu-south-2</td>
</tr>
</tbody>
</table>
Regions and stack set limitations

If you plan to extend governance to OUs with a large number of accounts across a large number of AWS Regions, you may encounter limits created by AWS CloudFormation stack sets on the overall size of an organization. You can estimate the limitation with this formula:

\[
\text{Number of managed accounts in Organization} \times \text{Number of governed Regions} \leq 150,000
\]

As a general rule, we expect that the number of accounts supported when extending governance to an OU diminishes with the number of Regions governed.

This limitation becomes apparent if more than 15 Regions where AWS Control Tower is available are activated when you're extending governance to an OU. The upper limit on the number of accounts per organizational unit (OU) is reduced.

For example, if 22 Regions are activated, the limit is 220 accounts per OU, instead of 300. If you require to extend governance to OUs with more than 220 accounts, you must reduce the number of activated Regions. This reduction is due to stack set limitations.

Guidelines:

- With 15 activated Regions, OUs of up to 300 accounts are supported
- With 22 activated Regions, OUs of up to 220 accounts are supported
- With 16 to 21 activated Regions, the maximum supported OU size is somewhere in the range of 220-300 accounts
- With 23+ activated Regions, the maximum supported OU size is less than 220 accounts
Best practices for AWS Control Tower administrators

This topic is intended primarily for management account administrators.

Management account administrators are responsible for explaining some tasks that AWS Control Tower controls prevent their member account administrators from doing. This topic describes some best practices and procedures for transferring this knowledge, and it gives other tips for setting up and maintaining your AWS Control Tower environment efficiently.

Explaining access to users

The AWS Control Tower console is available only to users with the management account administrator permissions. Only these users can perform administrative work within your landing zone. In accordance with best practices, this means that the majority of your users and member account administrators will never see the AWS Control Tower console. As a member of the management account administrator group, it's your responsibility to explain the following information to the users and administrators of your member accounts, as appropriate.

- Explain which AWS resources that users and administrators have access to within the landing zone.
- List the preventive controls that apply to each organizational unit (OU) so that the other administrators can plan and execute their AWS workloads accordingly.

Explaining resource access

Some administrators and other users may need an explanation of the AWS resources to which they have access to within your landing zone. This access can include programmatic access and console-based access. Generally speaking, read access and write access for AWS resources is allowed. To perform work within AWS, your users require some level of access to the specific services they need to do their jobs.

Some users, such as your AWS developers, may need to know about the resources to which they have access, so they can create engineering solutions. Other users, such as the end users of the applications that run on AWS services, do not need to know about AWS resources within your landing zone.
AWS offers tools to identify the scope of a user's AWS resource access. After you identify the scope of a user's access, you can share that information with the user, in accordance with your organization's information management policies. For more information about these tools, see the links that follow.

- **AWS access advisor** – The AWS Identity and Access Management (IAM) access advisor tool lets you determine the permissions that your developers have by analyzing the last timestamp when an IAM entity, such as a user, role, or group, called an AWS service. You can audit service access and remove unnecessary permissions, and you can automate the process if needed. For more information, see our [AWS Security blog post](#).

- **IAM policy simulator** – With the IAM policy simulator, you can test and troubleshoot IAM-based and resource-based policies. For more information, see [Testing IAM Policies with the IAM Policy Simulator](#).

- **AWS CloudTrail logs** – You can review AWS CloudTrail logs to see actions taken by a user, role, or AWS service. For more information about CloudTrail, see the [AWS CloudTrail User Guide](#).

Actions taken by AWS Control Tower landing zone administrators are viewable in the landing zone management account. Actions taken by member account administrators and users are viewable in the shared log archive account.

You can view a summary table of AWS Control Tower events in the [Activities page](#).

### Explaining preventive controls

A preventive control ensures that your organization's accounts maintain compliance with your corporate policies. The status of a preventive control is either **enforced** or **not-enabled**. A preventive control prevents policy violations by using service control policies (SCPs). In comparison, a detective control informs you of various events or states that exist, by means of defined AWS Config rules.

Some of your users, such as AWS developers, may need to know about the preventive controls that apply to any accounts and OUs they use, so they can create engineering solutions. The following procedure offers some guidance on how to provide this information for the right users, according to your organization's information management policies.
Note
This procedure assumes you've already created at least one child OU within your landing zone, as well as at least one AWS IAM Identity Center user.

To show preventive controls for users with a need to know

2. From the left navigation, choose Organization.
3. From the table, choose the name of one of the OUs for which your user needs information about the applicable controls.
4. Note the name of the OU and the controls that apply to this OU.
5. Repeat the previous two steps for each OU about which your user needs information.

For detailed information about the controls and their functions, see About controls in AWS Control Tower.

Plan your AWS Control Tower landing zone

When you go through the setup process, AWS Control Tower launches a key resource associated with your account, called a landing zone, which serves as a home for your organizations and their accounts.

Note
You can have one landing zone per organization.

For information about some best practices to follow when you plan and set up your landing zone, see AWS multi-account strategy for your AWS Control Tower landing zone.

Ways to Set Up AWS Control Tower

You can set up an AWS Control Tower landing zone in an existing organization, or you can start by creating a new organization that contains your AWS Control Tower landing zone.
• **Launch AWS Control Tower in an Existing Organization**: This section is for customers who have existing AWS Organizations ready to bring into governance by AWS Control Tower.

• **Launch AWS Control Tower in a New Organization**: This section is for customers without existing AWS Organizations, OUs, and accounts.

---

**Note**

If you already have an AWS Organizations landing zone, you can extend AWS Control Tower governance from the existing landing zone to some or all of your existing OUs and accounts within an organization. See [Govern existing organizations and accounts](#).

---

**Compare functionality**

Here's a brief comparison of the differences between adding AWS Control Tower to an existing organization or extending AWS Control Tower governance to OUs and accounts. Also, some special considerations apply if you are moving to AWS Control Tower from the AWS Landing Zone solution.

**About Adding to an Existing Organization**: Adding AWS Control Tower to an existing organization is something you can accomplish within the AWS console. In this case, you've already got an organization that you've created in the AWS Organizations service, that organization is not currently registered with AWS Control Tower, and you want to *add a landing zone afterward*.

When you *add* a landing zone to an existing organization, AWS Control Tower sets up a parallel structure, at the AWS Organizations level. It doesn't change the OUs and accounts within your existing organization.

**About Extending Governance**: Extending governance applies to specific OUs and accounts *within a single organization that's already registered* with AWS Control Tower, which means that a landing zone already exists for that organization. Extending governance means that AWS Control Tower controls are extended so that their constraints apply to the specific OUs and accounts within that registered organization. In this case, you're not launching a new landing zone, you're only expanding the current landing zone for your organization.

---

**Important**

Special consideration: If you currently are using the [AWS Landing Zone solution (ALZ)](#) for AWS Organizations, check with your AWS solutions architect before you try to enable...
AWS Control Tower in your organization. AWS Control Tower cannot perform pre-checks that determine whether AWS Control Tower may interfere with your current landing zone deployment. For more information, see [Walkthrough: Move from ALZ to AWS Control Tower](#). Also, for information about moving accounts from one landing zone to another, see [What if the account does not meet the prerequisites?](#)

---

### Launch AWS Control Tower in an Existing Organization

By setting up an AWS Control Tower landing zone in an existing organization, you can start working immediately, in parallel with your existing AWS Organizations environment. Your other OUs created within AWS Organizations are unchanged, because they are not registered with AWS Control Tower. You can continue to use those OUs and accounts exactly as they are.

AWS Control Tower consolidates by using the management account from your existing organization as its management account. No new management account is needed. You can launch your AWS Control Tower landing zone from your existing management account.

#### Note

To set up AWS Control Tower on an existing organization, your service limits must allow for the creation of at least two additional accounts.

---

### Effects of adding AWS Control Tower to your existing organization

AWS Control Tower creates two accounts in your organization: an audit account and a logging account. These accounts keep a record of actions taken by your team, in their individual end-user accounts. The **Audit** and **Log archive** accounts appear in the **Security** OU within your AWS Control Tower landing zone.

When you set up your landing zone, the accounts added by AWS Control Tower become part of your existing AWS Organizations, and as such they become part of the billing for your existing organization.

---

### Summary of capabilities

Enabling AWS Control Tower on an existing AWS Organizations organization provides several major enhancements to the organization.
• It allows for unified billing across your organization's groups, because accounts added by AWS Control Tower will become part of your existing organization.

• It gives you the ability to administer all accounts from one management account in your OU.

• It simplifies how you apply and enforce controls that cover security and compliance for existing and new accounts.

⚠️ Important
Launching your AWS Control Tower landing zone in an existing AWS Organizations organization does not enable you to extend AWS Control Tower governance from that organization to other OUs or accounts that are not registered with AWS Control Tower.

To launch AWS Control Tower in your existing organization, follow the process outlined in Getting started with AWS Control Tower.

For more information about how AWS Control Tower interacts with existing AWS Organizations organizations, see Govern organizations and accounts with AWS Control Tower.

Launch AWS Control Tower in a New Organization

If you're new to AWS Control Tower and you haven't worked with AWS Organizations, the best place to begin is with our Setting up document.

AWS Control Tower sets up an organization for you automatically when you don't have one set up.

AWS multi-account strategy for your AWS Control Tower landing zone

AWS Control Tower customers often seek guidance about how to set up their AWS environment and accounts for best results. AWS has created a unified set of recommendations, called the multi-account strategy, to help you make the best use of your AWS resources, including your AWS Control Tower landing zone.

Essentially, AWS Control Tower acts as an orchestration layer that works with other AWS services, which assist you with implementing the AWS multi-account recommendations for AWS accounts.
and AWS Organizations. After your landing zone is set up, AWS Control Tower continues to assist you with maintaining your corporate policies and security practices across multiple accounts and workloads.

Most landing zones develop over time. As the number of organizational units (OUs) and accounts in your AWS Control Tower landing zone increases, you can extend your AWS Control Tower deployment in ways that help organize your workloads effectively. This chapter provides prescriptive guidance on how to plan and set up your AWS Control Tower landing zone, in alignment with the AWS multi-account strategy, and extend it over time.

For a general discussion about best practices for organizational units, see Best Practices for Organizational Units with AWS Organizations.

**AWS multi-account strategy: Best practices guidance**

AWS best practices for a well-architected environment recommend that you should separate your resources and workloads into multiple AWS accounts. You can think of AWS accounts as isolated resource containers: they offer workload categorization, as well as blast radius reduction when things go wrong.

**Definition of an AWS account**

*An AWS account acts as a resource container and resource isolation boundary.*

**Note**

An AWS account is not the same as a user account, which is set up through Federation or AWS Identity and Access Management (IAM).

**More about AWS accounts**

An AWS account provides the ability to isolate resources and to contain security threats for your AWS workloads. An account also provides a mechanism for billing and for governance of a workload environment.

The AWS account is the primary implementation mechanism to provide a resource container for your workloads. If your environment is well-architected, you can manage multiple AWS accounts effectively, and thus, manage multiple workloads and environments.
AWS Control Tower sets up a well-architected environment. It relies upon AWS accounts, along with AWS Organizations, which help govern changes to your environment that can extend across multiple accounts.

**Definition of a well-architected environment**

AWS defines a well-architected environment as one that begins with a landing zone.

AWS Control Tower offers a landing zone that is set up automatically. It enforces controls to ensure compliance with your corporate guidelines, across multiple accounts in your environment.

**Definition of a landing zone**

The landing zone is a cloud environment that offers a recommended starting point, including default accounts, account structure, network and security layouts, and so forth. From a landing zone, you can deploy workloads that utilize your solutions and applications.

**Guidelines to set up a well-architected environment**

The three key components of a well-architected environment, explained in the following sections, are:

- Multiple AWS accounts
- Multiple organizational units (OUs)
- A well-planned structure

**Use multiple AWS accounts**

One account isn't enough to set up a well-architected environment. By using multiple accounts, you can best support your security goals and business processes. Here are some benefits of using a multi-account approach:

- **Security controls** – Applications have different security profiles, so they require different control policies and mechanisms. For example, it's far easier to talk to an auditor and point to a single account hosting the payment card industry (PCI) workload.
- **Isolation** – An account is a unit of security protection. Potential risks and security threats can be contained within an account without affecting others. Therefore, security needs may require you
to isolate accounts from one another. For example, you may have teams with different security profiles.

- **Many teams** – Teams have different responsibilities and resource needs. By setting up multiple accounts, the teams cannot interfere with one another, as they might when using the same account.

- **Data Isolation** – Isolating data stores to an account helps limit the number of people who have access to data and can manage the data store. This isolation helps prevent unauthorized exposure of highly private data. For example, data isolation helps support compliance with the General Data Protection Regulation (GDPR).

- **Business process** – Business units or products often have completely different purposes and processes. Individual accounts can be established to serve business-specific needs.

- **Billing** – An account is the only way to separate items at a billing level, including things like transfer charges and so forth. The multi-account strategy helps create separate billable items across business units, functional teams, or individual users.

- **Quota allocation** – AWS quotas are set up on a per-account basis. Separating workloads into different accounts gives each account (such as a project) a well-defined, individual quota.

### Use multiple organizational units

AWS Control Tower and other account orchestration frameworks can make changes that cross account boundaries. Therefore, the AWS best practices address cross-account changes, which potentially can break an environment or undermine its security. In some cases, changes can affect the overall environment, beyond policies. As a result, we recommend that you should set up at least two mandatory accounts, Production and Staging.

Furthermore, AWS accounts often are grouped into organizational units (OUs), for purposes of governance and control. OUs are designed to handle enforcement of policies across multiple accounts.

Our recommendation is that, at a minimum, you create a pre-production (or Staging) environment that is distinct from your Production environment—with distinct controls and policies. The Production and Staging environments can be created and governed as separate OUs, and billed as separate accounts. In addition, you may want to set up a Sandbox OU for code testing.

### Use a well-planned structure for OUs in your landing zone

Guidelines to set up a well-architected environment

64
AWS Control Tower sets up some OUs for you automatically. As your workloads and requirements expand over time, you can extend the original landing zone configuration to suit your needs.

**Note**
The names given in the examples follow the suggested AWS naming conventions for setting up a multi-account AWS environment. You can rename your OUs after you've set up your landing zone, by selecting **Edit** on the OU detail page.

**Recommendations**

After AWS Control Tower sets up the first, required OU for you — the Security OU — we recommend creating some additional OUs in your landing zone.

We recommend that you allow AWS Control Tower to create at least one additional OU, called the Sandbox OU. This OU is for your software development environments. AWS Control Tower can set up the Sandbox OU for you during landing zone creation, if you select it.

Two recommended other OUs you can set up on your own: the Infrastructure OU, to contain your shared services and networking accounts, and an OU to contain your production workloads, called the Workloads OU. You can add additional OUs in your landing zone through the AWS Control Tower console on the **Organizational units** page.

**Recommended OUs besides the ones set up automatically**

- **Infrastructure OU** – Contains your shared services and networking accounts.

**Note**
AWS Control Tower does not set up the Infrastructure OU for you.

- **Sandbox OU** – A software development OU. For example, it may have a fixed spending limit, or it may not be connected to the production network.

**Note**
AWS Control Tower recommends that you set up the Sandbox OU, but it is optional. It can be set up automatically as part of configuring your landing zone.
• **Workloads OU** – Contains accounts that run your workloads.

**Note**
AWS Control Tower does not set up the Workloads OU for you.

For more information see [Production starter organization with AWS Control Tower](#).

**Example of AWS Control Tower with a complete multi-account OU structure**

AWS Control Tower supports a nested OU hierarchy, which means that you can create a hierarchical OU structure that meets your organization's requirements. You can build an AWS Control Tower environment to match the AWS multi-account strategy guidance.

You also can build a simpler, flat OU structure that performs well and aligns with the AWS multi-account guidance. Just because you can build a hierarchical OU structure, it does not mean that you must do so.

- To view a diagram that shows an example set of OUs in an expanded, flat AWS Control Tower environment with AWS multi-account guidance, see [Example: Workloads in a Flat OU Structure](#).
- For more information about how AWS Control Tower works with nested OU structures, see [Nested OUs in AWS Control Tower](#).
- For more information about how AWS Control Tower aligns with the AWS guidance, see the AWS white paper, [Organizing Your AWS Environment Using Multiple Accounts](#).

The diagram on the linked page shows that more Foundational OUs and more Additional OUs have been created. These OUs serve the additional needs of a larger deployment.

In the Foundational OUs column, two OUs have been added to the basic structure:

- **Security_Prod OU** – Provides a read-only area for security policies, as well as a break-glass security audit area.
- **Infrastructure OU** – You may wish to separate the Infrastructure OU, recommended previously, into two OUs, Infrastructure_Test (for pre-production infrastructure) and Infrastructure_Prod (for production infrastructure).
In the Additional OUs area, several more OUs have been added to the basic structure. These following are the next recommended OUs to create as your environment grows:

- **Workloads OU** – The Workloads OU, recommended previously but optional, has been separated into two OUs, Workloads_Test (for pre-production workloads) and Workloads_Prod (for production workloads).
- **PolicyStaging OU** – Allows system administrators to test their changes to controls and policies before fully applying them.
- **Suspended OU** – Offers a location for accounts that may have been disabled temporarily.

**About the Root**

The Root is not an OU. It is a container for the management account, and for all OUs and accounts in your organization. Conceptually, the Root contains all of the OUs. It cannot be deleted. You cannot govern enrolled accounts at the Root level within AWS Control Tower. Instead, govern enrolled accounts within your OUs. For a helpful diagram, see [the AWS Organizations documentation](#).

**Administrative tips for landing zone setup**

- The AWS Region where you do the most work should be your home Region.
- Set up your landing zone and deploy your Account Factory accounts from within your home Region.
- If you’re investing in several AWS Regions, be sure that your cloud resources are in the Region where you’ll do most of your cloud administrative work and run your workloads.
- By keeping your workloads and logs in the same AWS Region, you reduce the cost that would be associated with moving and retrieving log information across regions.
- The audit and other Amazon S3 buckets are created in the same AWS Region from which you launch AWS Control Tower. We recommend that you do not move these buckets.
- You can make your own log buckets in the Log Archive account, but it is not recommended. Be sure to leave the buckets created by AWS Control Tower.
- Your Amazon S3 access logs must be in the same AWS Region as the source buckets.
- When launching, AWS Security Token Service (STS) endpoints must be activated in the management account, for all Regions supported by AWS Control Tower. Otherwise, the launch may fail midway through the configuration process.
• **AWS Control Tower supports tagging for enabled controls only.** For more information, see [AWS Control Tower supports tagging for enabled controls](#).

• We recommend enabling multi-factor authentication (MFA) for every account that AWS Control Tower manages.

### Considerations about VPCs

• The VPC created by AWS Control Tower is limited to the AWS Regions in which AWS Control Tower is available. Some customers whose workloads run in non-supported Regions may want to disable the VPC that is created with your Account Factory account. They may prefer to create a new VPC using the Service Catalog portfolio, or to create a custom VPC that runs only in the required Regions.

• The VPC created by AWS Control Tower is not the same as the default VPC that is created for all AWS accounts. In Regions where AWS Control Tower is supported, AWS Control Tower deletes the default VPC when it creates the AWS Control Tower VPC.

• If you delete your default VPC in your home AWS Region, it's best to delete it in all other AWS Regions.

### Recommendations for setting up groups, roles, and policies

As you set up your landing zone, it's a good idea to decide ahead of time which users will require access to certain accounts and why. For example, a security account should be accessible only to the security team, the management account should be accessible only to the cloud administrators' team, and so forth.

For more information about this topic, see [Identity and access management in AWS Control Tower](#).

### Recommended restrictions

You can restrict the scope of administrative access to your organizations by setting up an IAM role or policy that allows administrators to manage AWS Control Tower actions only. The recommended approach is to use the IAM policy `arn:aws:iam::aws:policy/service-role/AWSControlTowerServiceRolePolicy`. With the `AWSControlTowerServiceRolePolicy` role enabled, an administrator can manage AWS Control Tower only. Be sure to include appropriate access to AWS Organizations for managing your preventive controls, and SCPs, and access to AWS Config, for managing detective controls, in each account.
When you're setting up the shared audit account in your landing zone, we recommend that you assign the AWSSecurityAuditors group to any third-party auditors of your accounts. This group gives its members read-only permission. An account must not have write permissions on the environment that it is auditing, because it can violate compliance with Separation of Duty requirements for auditors.

You can impose conditions in your role trust policies, to restrict the accounts and resources that interact with certain roles in AWS Control Tower. We strongly recommend that you restrict access to the AWSControlTowerAdmin role, because it allows wide access permissions. for more information, see Optional conditions for your role trust relationships.

**Guidance for creating and modifying AWS Control Tower resources**

We recommend the following best practices as you create and modify resources in AWS Control Tower. This guidance might change as the service is updated.

**General Guidance**

- Do not modify or delete resources created by AWS Control Tower in the management account or in the shared accounts. Modification of these resources can require you to update your landing zone or re-register an OU.

- Do not modify or delete the AWS Identity and Access Management (IAM) roles created within the shared accounts in the Security organizational unit (OU). Modification of these roles can require an update to your landing zone.

- For more information about the resources created by AWS Control Tower, see What are the shared accounts?.

- Do not disallow usage of any AWS Regions through either SCPs or AWS Security Token Service (AWS STS). Doing so will cause AWS Control Tower to enter an undefined state. If you disallow Regions with AWS STS, your functionality will fail in those Regions, because authentication would be unavailable in those Regions. Instead, rely on the AWS Control Tower Region deny capability, as shown in the control, Deny access to AWS based on the requested AWS Region which works at the landing zone level, or the control Region deny control applied to the OU, which works at the OU level to restrict access to Regions.

- The AWS Organizations FullAWSAccess SCP must be applied and should not be merged with other SCPs. Change to this SCP is not reported as drift; however, some changes may affect AWS
Control Tower functionality in unpredictable ways, if access to certain resources is denied. For example, if the SCP is detached, or modified, an account may lose access to an AWS Config recorder or create a gap in CloudTrail logging.

- In general, AWS Control Tower performs a single action at a time, which must be completed before another action can begin. For example, if you attempt to provision an account while the process of enabling a control is already in operation, account provisioning will fail.

**Exception:**

- AWS Control Tower allows concurrent actions to deploy optional preventive and detective controls. See [Concurrent deployment for optional controls](#).

- AWS Control Tower allows up to ten concurrent create, update, or enroll actions on accounts, with account factory.

- Keep an active AWS Config recorder. If you delete your Config recorder, detective controls cannot detect and report drift. Non-compliant resources may be reported as [Compliant](#) due to insufficient information.

- Do not delete the AWSControlTowerExecution role from your member accounts, even in unenrolled accounts. If you do, you will not be able to enroll these accounts with AWS Control Tower, or register their immediate parent OUs.

- Do not use the AWS Organizations DisableAWSServiceAccess API to turn off AWS Control Tower service access to the organization where you've set up your landing zone. If you do so, certain AWS Control Tower drift detection features may not function properly without messaging support from AWS Organizations. These drift detection features help guarantee that AWS Control Tower can report the compliance status of organizational units, accounts, and controls in your organization accurately. For more information, see [API_DisableAWSServiceAccess](#) in the [AWS Organizations API Reference](#).

**Tips about accounts and OUs**

- We recommend that you keep each registered OU to a maximum of 300 accounts, so that you can update those accounts with the [Re-register OU](#) capability whenever account updates are required, such as when you configure new Regions for governance.

- To reduce the time required when registering an OU, we recommend that you keep the number of accounts per OU to around 150, even though the limit is 300 accounts per OU. As a general rule, the time required to register an OU increases according to the number of Regions in which your OU is operating, multiplied by the number of accounts in the OU.
• As an estimate, an OU with 150 accounts requires approximately 2 hours to register and enable controls, and about 1 hour to re-register. Also, an OU that has many controls takes longer to register than an OU with few controls.

• One concern about allowing a longer timeframe for registering an OU is that this process blocks other actions. Some customers are comfortable allowing longer times to register or re-register an OU, because they prefer to allow more accounts in each OU.

**When to sign in as a root user**

Certain administrative tasks require that you must sign in as a root user. You can sign in as a root user to an AWS account that was created by account factory in AWS Control Tower.

**You must sign in as a root user to perform the following actions:**

• Change certain account settings, including the account name, root user password, or email address. For more information, see [Update and move account factory accounts with AWS Control Tower or with AWS Service Catalog](#).

• To [close an AWS account](#).

• For more information about actions that require root user login credentials, see [Tasks that require root user credentials](#) in the [AWS Account Management Reference Guide](#).

![Note](#)

To change or enable your [AWS Support plan, you must be signed in as the root user or be a user with the appropriate IAM permissions](#).

**To sign in as root user**

1. Open the AWS sign-in page.

   If you don't have the email address of the AWS account to which you require access, you can get it from AWS Control Tower. Open the console for the management account, choose [Accounts](#), and look for the email address.

2. Enter the email address of the AWS account to which you require access, and then choose [Next](#).
3. Choose **Forgot password?** to have password reset instructions sent to the root user email address.

4. Open the password reset email message from the root user mailbox, then follow the instructions to reset your password.

5. Open the AWS sign-in page, then sign in with your reset password.

**AWS Organizations guidance**

- You can find guidance about best practices to protect the security of your AWS Control Tower management account and member accounts in the AWS Organizations documentation.
  - [Best practices for the management account](#)
  - [Best practices for member accounts](#)

- Don't use AWS Organizations to update service control policies (SCPs) attached to an OU that is registered with AWS Control Tower. Doing so could result in the controls entering an unknown state, which will require you to repair your landing zone or re-register your OU in AWS Control Tower. Instead, you can create new SCPs and attach those to the OUs rather than editing the SCPs that AWS Control Tower has created.

- Moving individual, already enrolled, accounts into AWS Control Tower, from outside of a registered OU, causes drift that must be repaired. See [Types of Governance Drift](#).

- If you use AWS Organizations to create, invite, or move accounts within an organization registered with AWS Control Tower, those accounts are not enrolled by AWS Control Tower and those changes are not recorded. If you need access to these accounts through SSO, see [Member Account Access](#).

- If you use AWS Organizations to move an OU into an organization created by AWS Control Tower, the external OU is not registered by AWS Control Tower.

- AWS Control Tower handles permission filtering differently than AWS Organizations does. If your accounts are provisioned with AWS Control Tower account factory, end-users can see the names and parents of all OUs in the AWS Control Tower console, even if they don't have permission to retrieve those names and parents from AWS Organizations directly.

- AWS Control Tower does not support mixed permissions on organizations, such as permission to view an OU's parent but not to view OU names. For this reason, AWS Control Tower administrators are expected to have full permissions.

- The AWS Organizations `FullAWSAccess` SCP must be applied and should not be merged with other SCPs. Change to this SCP is not reported as drift; however, some changes may affect AWS
Control Tower functionality in unpredictable ways, if access to certain resources is denied. For example, if the SCP is detached, or modified, an account may lose access to an AWS Config recorder or create a gap in CloudTrail logging.

- Don't use the AWS Organizations DisableAWSServiceAccess API to turn off AWS Control Tower service access to the organization where you've set up your landing zone. If you do so, certain AWS Control Tower drift detection features may not function properly without messaging support from AWS Organizations. These drift detection features help guarantee that AWS Control Tower can report the compliance status of of organizational units, accounts, and controls in your organization accurately. For more information, see API_DisableAWSServiceAccess in the AWS Organizations API Reference.

**IAM Identity Center guidance**

ℹ️ Note

SSO is an abbreviation used in the technology industry to denote *single sign-on*. In general terms, SSO is a session and user authentication service. It permits someone to use one set of login credentials for access to many applications. When referring to the single-sign on capability in AWS, we are referring to the AWS service called *AWS Identity and Access Management*, and abbreviated as IAM or IAM Identity Center.

AWS Control Tower recommends that you use AWS Identity and Access Management (IAM) to regulate access to your AWS accounts. However, you have the option to choose whether AWS Control Tower sets up IAM Identity Center for you, whether you set up IAM Identity Center for yourself, in a way that meets your business requirements most effectively, or whether to select another method for account access.

By default, AWS Control Tower sets up AWS IAM Identity Center for your landing zone, in alignment with best-practices guidance defined in [Organizing your AWS environment using multiple accounts](#). Most customers choose the default. Alternative access methods are required sometimes, for regulatory compliance in specific industries or countries, or in AWS Regions where AWS IAM Identity Center is not available.

**Choosing an option**
From the console, you can choose to self-manage IAM Identity Center during the landing zone set up process, rather than allowing AWS Control Tower to set it up for you. At any time later, you can choose to change this selection, by modifying the landing zone settings and updating your landing zone on the landing zone **Settings** page.

**To discontinue AWS IAM Identity Center in AWS Control Tower, or to begin using AWS IAM Identity Center**

1. Navigate to the landing zone **Settings** page
2. Select the **Configurations** tab
3. Then choose the appropriate radio button, to change your selection for AWS IAM Identity Center.

After you choose to self-manage AWS IAM Identity Center as your IdP, AWS Control Tower creates only those roles and policies needed to manage AWS Control Tower, such as `AWSControlTowerAdmin` and `AWSControlTowerAdminPolicy`. For landing zones that self-manage, AWS Control Tower no longer creates IAM roles and groupings for customer-specific use — not during the landing zone set-up process, nor during account provisioning with Account Factory.

**Note**

If you remove AWS IAM Identity Center from your AWS Control Tower landing zone, the users, groups, and permission sets that AWS Control Tower created are not removed. We recommend that you remove these resources.

Account Factory customers with alternative identity providers (IdPs) such as Azure AD, Ping, or Okta, can follow the AWS IAM Identity Center **process** to connect to an external identity provider and onboard their IdP. You can return to having AWS Control Tower generate your groupings and roles at any time, by modifying the landing zone settings.

- For specific information about how AWS Control Tower works with IAM Identity Center based on your identity source, see **Considerations for AWS IAM Identity Center customers** in the **Pre-launch checks** section of the **Getting Started** page of this User Guide.
• For additional information about how the behavior of AWS Control Tower interacts with IAM Identity Center and different identity sources, refer to Considerations for Changing Your Identity Source in the IAM Identity Center User Guide.

• See Working with AWS IAM Identity Center and AWS Control Tower for more information about working with AWS Control Tower and IAM Identity Center.

**Account Factory guidance**

You can encounter issues when using Account Factory to provision a new account in AWS Control Tower. For information about how to troubleshoot these issues, see the section New Account Provisioning Failed in Troubleshooting of the AWS Control Tower User Guide.

We recommend that you create federated users or IAM roles instead of IAM users. Federated users and IAM roles provide you with temporary credentials. IAM users have long-term credentials that can be difficult to manage. For more information, see IAM identities (users, user groups, and roles) in the IAM User Guide.

If you're authenticated as an IAM user or IAM Identity Center user when provisioning a new account in Account Factory or when using the Enroll account feature AWS Control Tower, verify that your user has access to your AWS Service Catalog portfolio. Otherwise, you might receive an error message from Service Catalog. For more information, see No Launch Paths Found Error in the Troubleshooting section of the AWS Control Tower User Guide.

**Note**

Up to five accounts can be provisioned at a time.

**Guidance on subscribing to SNS Topics**

• The aws-controltower-AllConfigNotifications SNS topic receives all events published by AWS Config, including compliance notifications and Amazon CloudWatch event notifications. For example, this topic informs you if a control violation has occurred. It also gives information about other types of events. (Learn more from AWS Config about what they publish when this topic is configured.)

• Data Events from the aws-controltower-BaselineCloudTrail trail are set to publish to the aws-controltower-AllConfigNotifications SNS topic as well.
To receive detailed compliance notifications, we recommend that you subscribe to the `aws-controltower-AllConfigNotifications` SNS topic. This topic aggregates compliance notifications from all child accounts.

To receive drift notifications and other notifications as well as compliance notifications, but fewer notifications overall, we recommend that you subscribe to the `aws-controltower-AggregateSecurityNotifications` SNS topic.

To receive notifications about AWS Control Tower Account Factory for Terraform (AFT) errors, you can subscribe to an SNS topic called `aft_failure_notifications`, shown in the AFT repository. For example:

```hcl
resource "aws_sns_topic" "aft_failure_notifications" {
  name = "aft-failure-notifications"
  kms_master_key_id = "alias/aws/sns"
}
```

For more information about SNS topics and compliance, see [Drift prevention and notification](#).

**Guidance for KMS keys**

AWS Control Tower works with AWS Key Management Service (AWS KMS). Optionally, if you wish to encrypt and decrypt your AWS Control Tower resources with an encryption key that you manage, you can generate and configure AWS KMS keys. You can add or change a KMS key any time you update your landing zone. As a best practice, we recommend using your own KMS keys and changing them from time to time.

AWS KMS allows you to create multi-Region KMS keys and asymmetric keys. However, AWS Control Tower does not support multi-Region keys or asymmetric keys. AWS Control Tower performs a pre-check of your existing keys. You may see an error message if you select a multi-Region key or an asymmetric key. In that case, generate another key for use with AWS Control Tower resources.

For customers who operate an AWS CloudHSM cluster: Create a custom key store associated with your CloudHSM cluster. Then you can create a KMS key, which resides in the CloudHSM custom key store you created. You can add this KMS key to AWS Control Tower.

You must make a specific update to the permissions policy of a KMS key to make it work with AWS Control Tower. For details, refer to the section called [Update the KMS key policy](#).
Configuration update management in AWS Control Tower

It is the responsibility of the members of your central cloud administrators' team to keep your landing zone updated. Updating your landing zone ensures that AWS Control Tower is patched and updated. In addition, to protect your landing zone from potential compliance issues, the members of the central cloud administrator team should resolve drift issues as soon as they're detected and reported.

⚠️ Note

The AWS Control Tower console indicates when your landing zone needs to be updated. If you don't see an option to update, your landing zone is already up to date.

The following table contains a list of AWS Control Tower landing zone update releases, with links to descriptions of each release.

<table>
<thead>
<tr>
<th>Version</th>
<th>Release date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3</td>
<td>12-12-2023</td>
<td>Landing zone version 3.3</td>
</tr>
<tr>
<td>3.2</td>
<td>6-09-2023</td>
<td>Landing zone version 3.2</td>
</tr>
<tr>
<td>3.1</td>
<td>2-09-2023</td>
<td>Landing zone version 3.1</td>
</tr>
<tr>
<td>3.0</td>
<td>7-26-2022</td>
<td>Landing zone version 3.0</td>
</tr>
<tr>
<td>2.9</td>
<td>4-22-2022</td>
<td>Landing zone version 2.9</td>
</tr>
<tr>
<td>2.8</td>
<td>2-10-2022</td>
<td>Landing zone version 2.8</td>
</tr>
<tr>
<td>2.7</td>
<td>4-8-2021</td>
<td>Landing zone version 2.7</td>
</tr>
<tr>
<td>2.6</td>
<td>12-29-2020</td>
<td>Landing zone version 2.6</td>
</tr>
<tr>
<td>2.5</td>
<td>11-18-2020</td>
<td>Landing zone version 2.5</td>
</tr>
</tbody>
</table>
Each time you update your landing zone, you have the opportunity to modify your landing zone settings.

**Benefits of updating**

- You can change your governed Regions
- You can change your log retention policy
- You can add or remove the Region deny control
- You can apply AWS KMS encryption keys
- You can activate or deactivate your organization-level CloudTrail trail.
- You can resolve [landing zone drift](#)

When you update your landing zone, you receive the latest features for AWS Control Tower, automatically. View your current landing zone version on the [Landing zone settings](#) page.

You have the opportunity to clear unused AWS Identity center (formerly called AWS SSO) mappings when you update your landing zone. For more information, see [Field Notes: Clear Unused IAM Identity Center Mappings Automatically During AWS Control Tower Upgrades](#).

1. **Prerequisite for Update and Repair – turn off Requester Pays**

   Before you update or repair your landing zone, be sure that the Amazon S3 logging bucket for the Log Archive account does not have the **Requester Pays** feature enabled. You must turn off that feature before you begin the **Update** or **Repair** process. When AWS Control Tower sets up your logging bucket, this feature is not enabled. Therefore, only the customers who have subsequently activated the Requester Pays feature must turn it off. For
About Updates

Updates are required to correct governance drift, or to move to a new version of AWS Control Tower. To perform a complete update of AWS Control Tower, you must update your landing zone first and then update the enrolled accounts individually. You may need to perform three types of updates at different times.

- **A landing zone update**: Most often this type of update is performed by choosing Update on the Landing zone settings page. You may need to perform a landing zone update to repair certain types of drift, and you can choose Repair when necessary.

- **An update of one or more individual accounts**: You must update accounts if the associated information changes, or if certain types of drift have occurred. If an account requires an update, the account’s status will show Update available on the Accounts page.

  To update a single account, navigate to the account detail page and select Update account. Accounts also may be updated by a manual process, by choosing Re-register OU, or with an automated scripting approach, described in a later section of this page.

- **A full update**: A full update includes an update of your landing zone, followed by an update of all the enrolled accounts in your registered OU. Full updates are required with a new release of AWS Control Tower such as 2.9, 3.0, and so forth.

**Note**

After completing a landing zone update, you cannot undo the update or downgrade to a previous version.

Update Your Landing Zone

The easiest way to update your AWS Control Tower landing zone is through the Landing zone settings page, which you can reach by choosing Landing zone settings in the left navigation of the AWS Control Tower dashboard.
The **Landing zone settings** page shows you the current version of your landing zone, and it lists any updated versions that may be available. You can choose the **Update** button if you need to update your version.

**Note**

Alternatively, you can update your landing zone manually. The update takes approximately the same amount of time, whether you use the **Update** button or the manual process. To perform a manual update of your landing zone only, see steps 1 and 2 that follow.

### Manual updates

The following procedure walks you through the steps of a full update for AWS Control Tower manually. To update an individual account, see [Update the account in the console](#).

#### To update your landing zone manually, with any number of accounts per OU

2. Review the information in the wizard and choose **Update**. This updates the backend of the landing zone as well as your shared accounts. This process can take a little more than half an hour.
3. Update your member accounts (this procedure must be followed for an OU that contains over 300 accounts).
4. From the left navigation pane, choose **Organization**.
5. To update each account, follow the steps given in [Update the account in the console](#).

**Optionally Re-register OU to update accounts**

For registered AWS Control Tower OUs with fewer than 300 accounts, you can go to the **OU page** in the dashboard and select **Re-register OU** to update the accounts in that OU.

### Resolve drift with Repair and Re-register

Drift often occurs as you and your organization members use the landing zone.
Drift detection is automatic in AWS Control Tower. Automated scans of your SCPs help you identify resources that need changes or configuration updates that must be made to resolve the drift.

To repair most types of drift, choose Repair on the Landing zone settings page. Also, you can repair some types of drift by choosing to Re-register an OU. For more information about types of drift and how to resolve them, see Types of Governance Drift and Detect and resolve drift in AWS Control Tower.

One special case of repair occurs for role drift. If a required role is not available, the console shows a warning page and some instructions on how to restore the role. Your landing zone is unavailable until the role drift is repaired. This drift repair is not the same as a full landing zone repair. For more information, see Don't delete required roles in the section called Types of drift to repair right away.

**Note**

When you fully repair your landing zone, the landing zone is upgraded to the latest landing zone version.

### Provision and update accounts using automation

You can provision or update individual accounts in AWS Control Tower by several methods:

- You can provision and customize accounts with AWS Control Tower Account Factory for Terraform (AFT). For more information, see Overview of AWS Control Tower Account Factory for Terraform (AFT).
- You can update accounts with Customizations for AWS Control Tower (CfCT). For more information, see Customizations for AWS Control Tower (CfCT) overview.
- **Script automation**: If you prefer to use an API approach, you can update accounts using the API framework of Service Catalog and the AWS CLI to update the accounts in a batch process. You’d call the UpdateProvisionedProduct API of Service Catalog for each account. You can write a script to update the accounts, one by one, with this API. More information about this approach, when adding Regions for governance, is available in a blog post, Enabling guardrails in new AWS Regions.

You can update as many as five (5) accounts at a time. You must wait for at least one account update to succeed before beginning the next account update. Therefore, the process may take a
long time if you have a lot of accounts, but it is not complicated. For more information about this approach, see the Walkthrough: Automate Account Provisioning in AWS Control Tower by Service Catalog APIs.

**Video walkthrough**

The Video Walkthrough is designed for automated account provisioning with a script, but the steps also apply to account updating. Use the UpdateProvisionedProduct API instead of the ProvisionProduct API.

A further step of automation by script is to check for Succeed status of the AWS Control Tower UpdateLandingZone lifecycle event. Use it as a trigger to begin updating individual accounts as described in the video. A lifecycle event marks the completion of a sequence of activities, so the occurrence of this event means that a landing zone update is complete. The landing zone update must be complete before account updates begin. For more information about working with lifecycle events, see Lifecycle Events.

Also see:

- Using AWS CloudShell to work with AWS Control Tower.
- Automate tasks in AWS Control Tower.
Automate tasks in AWS Control Tower

Many customers prefer to automate tasks in AWS Control Tower, such as account provisioning, control assignment, and auditing. You can set up these automated actions with calls to:

- AWS Service Catalog APIs
- AWS Organizations APIs
- AWS Control Tower APIs
- the AWS CLI

The Related information page contains links to many excellent technical blog posts that can help you automate tasks in AWS Control Tower. The sections that follow provide links to areas in this AWS Control Tower User Guide that can assist you with automating tasks.

Automating control tasks

You can automate tasks related to applying and removing controls (also known as *guardrails*) through the AWS Control Tower API. For details, see the AWS Control Tower API Reference.

For more information about how to perform operations with AWS Control Tower APIs, see the blog post AWS Control Tower releases API, pre-defined controls to your organizational units.

Automated account closure

You can automate the closure of AWS Control Tower member accounts with an AWS Organizations API. For more information, see Close an AWS Control Tower member account through AWS Organizations.

Automated account provisioning and updating

AWS Control Tower Account Factory Customization (AFC) helps you create accounts from the AWS Control Tower console, with customized AWS CloudFormation templates that we refer to as blueprints. This process is automated in the sense that you can create new accounts and update accounts repeatedly, after setting up a single blueprint, without maintaining pipelines.

AWS Control Tower Account Factory for Terraform (AFT) follows a GitOps model to automate the processes of account provisioning and account updating in AWS Control Tower. For more information, see Provision accounts with AWS Control Tower Account Factory for Terraform (AFT).
Customizations for AWS Control Tower (CfCT) helps you customize your AWS Control Tower landing zone and stay aligned with AWS best practices. Customizations are implemented with AWS CloudFormation templates and service control policies (SCPs). For more information, see Customizations for AWS Control Tower (CfCT) overview.

For more information and a video about automated account provisioning, see Walkthrough: Automated account provisioning in AWS Control Tower and Automated provisioning with IAM roles.

Also see Update accounts by script.

Programmatic auditing of accounts

For more information about auditing accounts programmatically, see Programmatic roles and trust relationships for the AWS Control Tower audit account.

Automating other tasks

For information about how to increase certain AWS Control Tower service quotas with an automated request method, view this video: Automate Service Limit Increases.

For technical blogs that cover automation and integration use cases, see Automation and integration.

Two open source samples are available on GitHub to help you with certain automation tasks related to security.

- The sample called aws-control-tower-org-setup-sample shows how to automate setting up the Audit account as the delegated administrator for security-related services.

- The sample called aws-control-tower-account-setup-using-step-functions shows how to automate security best practices using Step Functions, when provisioning and configuring new accounts. This sample includes adding principals to organizationally-shared AWS Service Catalog portfolios and associating organization-wide AWS IAM Identity Center groups to new accounts automatically. It also illustrates how to delete the default VPC in every Region.

The AWS Security Reference Architecture includes code examples for automating tasks related to AWS Control Tower. For more information, see the AWS Prescriptive Guidance pages and the associated GitHub repository.
For information about using AWS Control Tower with AWS CloudShell, an AWS service that facilitates working in the AWS CLI, see AWS CloudShell and the AWS CLI.

Because AWS Control Tower is an orchestration layer for AWS Organizations, many other AWS services are available by means of APIs and the AWS CLI. For more information, see Related AWS services.

**Using AWS CloudShell to work with AWS Control Tower**

AWS CloudShell is an AWS service that facilitates working in the AWS CLI — it's a browser-based, pre-authenticated shell that you can launch directly from the AWS Management Console. There's no need to download or install command line tools. You can run AWS CLI commands for AWS Control Tower and other AWS services from your preferred shell (Bash, PowerShell or Z shell).

When you launch AWS CloudShell from the AWS Management Console, the AWS credentials you used to sign in to the console are available in a new shell session. You can skip entering your configuring credentials when you interact with AWS Control Tower and other AWS services, and you'll be using AWS CLI version 2, which is pre-installed on the shell's compute environment. You're pre-authenticated with AWS CloudShell.

**Obtaining IAM permissions for AWS CloudShell**

AWS Identity and Access Management provides access management resources that allow administrators to grant permissions to IAM users and IAM Identity Center users for access to AWS CloudShell.

The quickest way for an administrator to grant access to users is through an AWS managed policy. An AWS managed policy is a standalone policy that's created and administered by AWS. The following AWS managed policy for CloudShell can be attached to IAM identities:

- AWSCloudShellFullAccess: Grants permission to use AWS CloudShell with full access to all features.

If you want to limit the scope of actions that an IAM user or IAM Identity Center user can perform with AWS CloudShell, you can create a custom policy that uses the AWSCloudShellFullAccess managed policy as a template. For more information about limiting the actions that are available to users in CloudShell, see Managing AWS CloudShell access and usage with IAM policies in the AWS CloudShell User Guide.
Note

Your IAM identity also requires a policy that grants permission to make calls to AWS Control Tower. For more information, see Permissions required to use the AWS Control Tower console.

Interacting with AWS Control Tower using AWS CloudShell

After you launch AWS CloudShell from the AWS Management Console, you can immediately start to interact with AWS Control Tower from the command line interface. AWS CLI commands work in the standard way in CloudShell.

Note

When using AWS CLI in AWS CloudShell, you don't need to download or install any additional resources. You're already authenticated within the shell, so you don't need to configure credentials before making calls.

Launch AWS CloudShell

- From the AWS Management Console, you can launch CloudShell by choosing the following options available on the navigation bar:
  - Choose the CloudShell icon.
  - Start typing "cloudshell" in Search box and then choose the CloudShell option.

Now that you've started CloudShell, you can enter any AWS CLI commands you require to work with AWS Control Tower. For example, you can check your AWS Config status.

Using AWS CloudShell to help set up AWS Control Tower

Before performing these procedures, unless it's otherwise indicated, you must be signed in to the AWS Management Console in the home Region for your landing zone, and you must be signed in as an IAM Identity Center user or IAM user with administrative permissions for the management account that contains your landing zone.
1. Here's how you can use AWS Config CLI commands in AWS CloudShell to determine the status of your configuration recorder and delivery channel before you start to configure your AWS Control Tower landing zone.

   **Check your AWS Config status**

   **View commands:**

   - `aws configservice describe-delivery-channels`
   - `aws configservice describe-delivery-channel-status`
   - `aws configservice describe-configuration-recorders`
   - The normal response is something like "name": "default"

2. If you have an existing AWS Config recorder or delivery channel that you need to delete before you set up your AWS Control Tower landing zone, here are some commands you can enter:

   **Manage your pre-existing AWS Config resources**

   **Delete commands:**

   - `aws configservice stop-configuration-recorder --configuration-recorder-name NAME-FROM-DESCRIBE-OUTPUT`
   - `aws configservice delete-delivery-channel --delivery-channel-name NAME-FROM-DESCRIBE-OUTPUT`
   - `aws configservice delete-configuration-recorder --configuration-recorder-name NAME-FROM-DESCRIBE-OUTPUT`

   **Important**

   Do not delete the AWS Control Tower resources for AWS Config. Loss of these resources can cause AWS Control Tower to enter an inconsistent state.

   **For more information, see the AWS Config documentation**

   - Managing the Configuration Recorder (AWS CLI)
   - Managing the Delivery Channel
3. This example shows AWS CLI commands you'd enter from AWS CloudShell to enable or disable trusted access for AWS Organizations. For AWS Control Tower you do not need to enable or disable trusted access for AWS Organizations, it is just an example. However, you may need to enable or disable trusted access for other AWS services if you're automating or customizing actions in AWS Control Tower.

**Enable or disable trusted service access**

- `aws organizations enable-aws-service-access`
- `aws organizations disable-aws-service-access`

**Create an Amazon S3 bucket with AWS CloudShell**

In the following example, you can use AWS CloudShell to create an Amazon S3 bucket and then use the `PutObject` method to add a code file as an object in that bucket.

1. To create a bucket in a specified AWS Region, enter the following command in the CloudShell command line:

   ```
   aws s3api create-bucket --bucket insert-unique-bucket-name-here --region us-east-1
   ```

   If the call is successful, the command line displays a response from the service similar to the following output:

   ```
   {
      "Location": "/insert-unique-bucket-name-here"
   }
   ```

   **Note**

   If you don't adhere to the rules for naming buckets (using only lowercase letters, for example), the following error is displayed: An error occurred (InvalidBucketName) when calling the CreateBucket operation: The specified bucket is not valid.

2. To upload a file and add it as an object to the bucket that was just created, call the `PutObject` method:
If the object is uploaded successfully to the Amazon S3 bucket, the command line displays a response from the service similar to the following output:

```
{
"ETag": "\"ab123c1:w:wad4a567d8bf9a1234ebbea56\"
}
```

The ETag is the hash of the object that's been stored. It can be used to check the integrity of the object uploaded to Amazon S3.

Creating AWS Control Tower resources with AWS CloudFormation

AWS Control Tower is integrated with AWS CloudFormation, a service that helps you to model and set up your AWS resources so that you can spend less time creating and managing your resources and infrastructure. You create a template that describes all the AWS resources that you want, such as AWS::ControlTower::EnabledControl (such as controls). AWS CloudFormation provisions and configures those resources for you.

When you use AWS CloudFormation, you can reuse your template to set up your AWS Control Tower resources consistently and repeatedly. Describe your resources once, and then provision the same resources over and over in multiple AWS accounts and Regions.

AWS Control Tower and AWS CloudFormation templates

To provision and configure resources for AWS Control Tower and related services, you must understand AWS CloudFormation templates. Templates are formatted text files in JSON or YAML. These templates describe the resources that you want to provision in your AWS CloudFormation stacks. If you're unfamiliar with JSON or YAML, you can use AWS CloudFormation Designer to help you get started with AWS CloudFormation templates. For more information, see What is AWS CloudFormation Designer? in the AWS CloudFormation User Guide.

AWS Control Tower supports creating AWS::ControlTower::EnabledControl (control resources) in AWS CloudFormation. For more information, including examples of JSON and YAML
templates for AWS::ControlTower::EnabledControl, see the [AWS Control Tower resource type reference](http://aws.amazon.com) in the *AWS CloudFormation User Guide*.

**Note**

The limit for EnableControl and DisableControl updates in AWS Control Tower is 10 concurrent operations.

To view some AWS Control Tower examples for the CLI and the console, see [Enable controls with AWS CloudFormation](http://aws.amazon.com).

**Learn more about AWS CloudFormation**

To learn more about AWS CloudFormation, see the following resources:

- [AWS CloudFormation](http://aws.amazon.com)
- [AWS CloudFormation User Guide](http://aws.amazon.com)
- [AWS CloudFormation API Reference](http://aws.amazon.com)
- [AWS CloudFormation Command Line Interface User Guide](http://aws.amazon.com)
Customize your AWS Control Tower landing zone

Certain aspects of your AWS Control Tower landing zone are configurable in the console, such as selection of Regions and optional controls. Other changes may be made outside the console, with automation.

For example, you can create more extensive customizations of your landing zone with the Customizations for AWS Control Tower capability, a GitOps-style customization framework that works with AWS CloudFormation templates and AWS Control Tower lifecycle events.

Customize from the AWS Control Tower console

To make these customizations to your landing zone, follow the steps given by the AWS Control Tower console.

Select customized names during setup

- You can select your top-level OU names during setup. You can rename your OUs at any time using the AWS Organizations console, but making changes to your OUs in AWS Organizations may cause repairable drift.

- You can select the names of your shared Audit and Log Archive accounts, but you cannot change the names after setup. (This is a one-time selection.)

Tip

Remember that renaming an OU in AWS Organizations does not update the corresponding provisioned product in Account Factory. To update the provisioned product automatically (and avoid drift), you must perform the OU operation through AWS Control Tower, including creating, deleting, or re-registering an OU.

Select AWS Regions

- You can customize your landing zone by selecting specific AWS Regions for governance. Follow the steps in the AWS Control Tower console.
• You can select and de-select AWS Regions for governance when you update your landing zone.

• You can set the Region Deny control to **Enabled** or **Not enabled**, and control user access to most AWS services in ungoverned AWS Regions.

For information about AWS Regions where CfCT has deployment limitations, see [Control limitations](#).

**Customize by adding optional controls**

• Strongly recommended and elective controls are optional, which means that you can customize the level of enforcement for your landing zone by choosing which ones to enable. **Optional controls** are not enabled by default.

• The optional [Controls that enhance data residency protection](#) allow you to customize the Regions in which you store and allow access to your data.

• The optional controls that are part of the integrated Security Hub standard allow you to scan your AWS Control Tower environment to check for security risks.

• The optional proactive controls allow you to check your AWS CloudFormation resources before they are provisioned, to make sure the new resources will comply with your environment's control objectives.

**Customize your AWS CloudTrail trails**

• When you update your landing zone to version 3.0 or later, you can choose to opt into or opt out of organization-level CloudTrail trails managed by AWS Control Tower. You can change this selection any time you update your landing zone. AWS Control Tower creates an organization-level trail in your management account, and that trail enters active or inactive status, based on your choice. Landing zone 3.0 does not support account-level CloudTrail trails; however, if you require these, you can configure and manage your own trails. You may incur additional cost for duplicate trails.

**Create customized member accounts in the console**

• You can create AWS Control Tower member accounts that are customized, and you can update existing member accounts to add customizations, from the AWS Control Tower console. For more information, see [Customize accounts with Account Factory Customization (AFC)](#).
Automate customizations outside the AWS Control Tower console

Some customizations are not available through the AWS Control Tower console, but they can be implemented in other ways. For example:

- You can customize accounts during provisioning, in a GitOps-style workflow, with Account Factory for Terraform (AFT).

  AFT is deployed with a Terraform module, available in the AFT repository.

- You can customize your AWS Control Tower landing zone with Customizations for AWS Control Tower (CfCT), a package of functionality that is built upon AWS CloudFormation templates and service control policies (SCPs). You can deploy the custom templates and policies to individual accounts and organizational units (OUs) within your organization.

  Source code for CfCT is available in a GitHub repository.

Benefits of Customizations for AWS Control Tower (CfCT)

The package of functionality that we refer to as Customizations for AWS Control Tower (CfCT) helps you create more extensive customizations for your landing zone than you can create in the AWS Control Tower console. It offers a GitOps-style, automated process. You can reshape your landing zone to meet your business requirements.

This infrastructure-as-code customization process integrates AWS CloudFormation templates with AWS service control policies (SCPs) and AWS Control Tower lifecycle events, so that your resource deployments remain synchronized with your landing zone. For example, when you create a new account with Account Factory, the resources attached to the account and the OU can be deployed automatically.

Note

Unlike Account Factory and AFT, CfCT is not specifically intended to create new accounts, but to customize accounts and OUs in your landing zone by deploying resources that you specify.
Benefits

• **Expand a customized and secure AWS environment** – You can expand your multi-account AWS Control Tower environment more quickly, and incorporate AWS best practices into a repeatable customization workflow.

• **Instantiate your requirements** – You can customize your AWS Control Tower landing zone for your business requirements, with the AWS CloudFormation templates and service control policies that express your policy intentions.

• **Automate further with AWS Control Tower lifecycle events** – Lifecycle events allow you to deploy resources based on completion of a previous series of events. You can rely on a lifecycle event to help you deploy resources to accounts and OUs, automatically.

• **Extend your network architecture** – You can deploy customized network architectures that improve and protect your connectivity, such as a transit gateway.

Additional CfCT examples

• An example networking use case with **Customizations for AWS Control Tower (CfCT)** is given in the AWS Architecture blog post, [Deploy consistent DNS with Service Catalog and AWS Control Tower customizations](https://aws.amazon.com/blogs/architecture/deploy-consistent-dns-with-service-catalog-and-aws-control-tower-customizations/).

• A specific example related to CfCT and Amazon GuardDuty is available on GitHub in the [aws-samples repository](https://github.com/aws-samples/aws-samples/tree/master/cfct-guard-duty).

• Additional code examples regarding CfCT are available as part of the AWS Security Reference Architecture, in the [aws-samples repository](https://github.com/aws-samples/aws-samples/tree/master/cfct-guard-duty). Many of these examples contain sample `manifest.yaml` files in a directory named `customizations_for_aws_control_tower`.

For more information about the AWS Security Reference Architecture, see the [AWS Prescriptive Guidance pages](https://aws.amazon.com/prescriptive-guidance/).

**Customizations for AWS Control Tower (CfCT) overview**

*Customizations for AWS Control Tower (CfCT)* helps you customize your AWS Control Tower landing zone and stay aligned with AWS best practices. Customizations are implemented with AWS CloudFormation templates and service control policies (SCPs).

This CfCT capability is integrated with AWS Control Tower lifecycle events, so that your resource deployments remain synchronized with your landing zone. For example, when a new account is
created through account factory, all resources attached to the account are deployed automatically. You can deploy the custom templates and policies to individual accounts and organizational units (OUs) within your organization.

The following video describes best practices for deploying a scalable CfCT pipeline and common CfCT customizations.

The following section provides architectural considerations and configuration steps for deploying Customizations for AWS Control Tower (CfCT). It includes a link to the AWS CloudFormation template that launches, configures, and runs the required AWS services, in alignment with AWS best practices for security and availability.

*This topic is intended for IT infrastructure architects and developers who have practical experience architecting in the AWS Cloud.*

For information about the latest updates and changes to Customizations for AWS Control Tower (CfCT), refer to the CHANGELOG.md file in the GitHub repository.

**Architecture overview**

Deploying CfCT builds the following environment in the AWS Cloud.

![Figure 1: Customizations for AWS Control Tower architecture](image)

*Architecture*
CfCT includes an AWS CloudFormation template that you deploy in your AWS Control Tower management account. The template launches all the components necessary to build the workflows, so you can customize your AWS Control Tower landing zone.

**Note**
CfCT must be deployed in the AWS Control Tower home Region and in the AWS Control Tower management account, because that is where your AWS Control Tower landing zone is deployed. For information about setting up an AWS Control Tower landing zone, refer to *Getting started.*

As you deploy CfCT, it packages and uploads the custom resources to the code pipeline source, by means of Amazon Simple Storage Service (Amazon S3). The upload process automatically invokes the service control policies (SCPs) state machine and the AWS CloudFormation StackSets state machine to deploy the SCPs at the OU level, or to deploy stack instances at the OU or account level.

**Note**
By default, CfCT creates an Amazon S3 bucket to store the pipeline source, but you can change the location to an AWS CodeCommit repository. For more information, refer to *Set up Amazon S3 as the configuration source.*

**CfCT deploys two workflows:**

- an AWS CodePipeline workflow
- and an AWS Control Tower lifecycle event workflow.

**The AWS CodePipeline workflow**

The AWS CodePipeline workflow configures AWS CodePipeline, AWS CodeBuild projects, and AWS Step Functions that orchestrate the management of AWS CloudFormation StackSets and SCPs in your organization.

When you upload the configuration package, CfCT invokes the code pipeline to run three stages.

- **Build Stage** – validates the contents of the configuration package using AWS CodeBuild.
• **SCP Stage** – invokes the service control policy state machine, which calls the AWS Organizations API to create SCPs.

• **AWS CloudFormation Stage** – invokes the stack set state machine to deploy the resources specified in the list of accounts or OUs, which you've provided in the manifest file.

At each stage, the code pipeline invokes the stack set and SCP step functions, which deploy custom stack sets and SCPs to the targeted individual accounts, or to an entire organizational unit.

⚠️ **Note**

For detailed information about customizing the configuration package, refer to CfCT customization guide.

### The AWS Control Tower lifecycle event workflow

When a new account is created in AWS Control Tower, a lifecycle event can invoke the AWS CodePipeline workflow. You can customize the configuration package through this workflow, which consists of an Amazon EventBridge event rule, an Amazon Simple Queue Service (Amazon SQS) first-in-first-out (FIFO) queue, and an AWS Lambda function.

When the Amazon EventBridge event rule detects a matching lifecycle event, it passes the event to the Amazon SQS FIFO queue, invokes the AWS Lambda function, and invokes the code pipeline to perform downstream deployment of stack sets and SCPs.

### Cost

The cost for running CfCT depends on the number of AWS CodePipeline runs, the duration of AWS CodeBuild runs, the number and duration of AWS Lambda functions, and the number of Amazon EventBridge events published. For example, if you run 100 builds in one month using build.general1.small where each build runs for five minutes, then the approximate cost for running CfCT is **$3.00 per month**. For full details, you can review the pricing webpage for each AWS service you are running.

The Amazon Simple Storage Service (Amazon S3) bucket and AWS CodeCommit Git-based repository resources are retained after you delete the template, to protect your configuration information. Depending on the option you select, you are charged based on the amount of data stored in the Amazon S3 bucket and the number of Git requests (not applicable to Amazon S3 resource). Refer to Amazon S3 and AWS CodeCommit pricing for details.
Component services

The following AWS services are components of Customizations for AWS Control Tower (CfCT).

AWS CodeCommit

Based on your input to the AWS CloudFormation template, CfCT can create an AWS CodeCommit repository with the same sample configuration that's explained in the Amazon Simple Storage Service section.

To clone the CfCT AWS CodeCommit repository to your local computer, you must create credentials that give you temporary access to the repository, as explained in the AWS CodeCommit User Guide. For information about version compatibility, see Setting up for AWS CodeCommit.

AWS CodePipeline

AWS CodePipeline validates, tests, and implements changes based on updates to the configuration package, which you'll make in either the default Amazon S3 bucket or the AWS CodeCommit repository. For more information about changing the configuration source control to AWS CodeCommit, refer to Using Amazon S3 as the Configuration Source. The pipeline includes stages to validate and manage the configuration files and templates, core accounts, AWS Organizations service control policies, and AWS CloudFormation StackSets. For more information about the pipeline stages, refer to CfCT customization guide

AWS Key Management Service

CfCT creates an AWS Key Management Service (AWS KMS) CustomControlTowerKMSKey encryption key. This key is used to encrypt objects in the Amazon S3 configuration bucket, Amazon SQS queue, and sensitive parameters in the AWS Systems Manager Parameter Store. By default, only roles provisioned by CfCT have permission to perform encryption or decryption operations with this key. For access to the configuration file, FIFO queue, or Parameter Store SecureString values, administrators must be added to the CustomControlTowerKMSKey policy. Automatic key rotation is enabled by default.

AWS Lambda

CfCT uses AWS Lambda functions to invoke the installation components during the initial installation and deployment of AWS CloudFormation StackSets or AWS Organizations SCPs during an AWS Control Tower lifecycle event.
Amazon Simple Notification Service

CfCT may publish notifications, such as pipeline approval to Amazon Simple Notification Service (Amazon SNS) topics during the workflow. Amazon SNS is launched only when you choose to receive pipeline approval notifications.

Amazon Simple Storage Service

When you deploy CfCT, CfCT creates an Amazon Simple Storage Service (Amazon S3) bucket with a unique name:

Example: Amazon S3 bucket name

custom-control-tower-configuration-accountID-region

The bucket contains a sample configuration file called _custom-control-tower-configuration.zip

Notice the leading underscore in the file name.

This zip file provides a sample manifest and the related sample templates that describe the necessary folder structure. These examples help you develop a configuration package to customize your AWS Control Tower landing zone. The sample manifest identifies the required configurations for stack sets and service control policies (SCPs) you'll need, when you implement your customizations.

You can use this sample configuration package as a model, to develop and upload your custom package, which triggers the CfCT configuration pipeline automatically.

For information about customizing the configuration file, see CfCT customization guide.

Amazon Simple Queue Service

CfCT uses an Amazon Simple Queue Service (Amazon SQS) FIFO queue to capture lifecycle events from Amazon EventBridge. It triggers an AWS Lambda function, which invokes AWS CodePipeline to deploy AWS CloudFormation StackSets or SCPs. For more information about SCPs, see AWS Organizations.

AWS Step Functions

CfCT creates Step Functions to orchestrate customization deployments. These Step Functions translate configuration files to deploy the customizations as needed across environments.
AWS Systems Manager Parameter Store

AWS Systems Manager Parameter Store stores the CfCT configuration parameters. These parameters allow you to integrate related configuration templates. For example, you can configure each account to log AWS CloudTrail data to a centralized Amazon S3 bucket. Also, the Systems Manager Parameter Store provides a centralized location where administrators can view CfCT inputs and parameters.

Deployment considerations

Be sure to launch Customizations for AWS Control Tower (CfCT) in the same account and Region where your AWS Control Tower landing zone is deployed; that is, you must deploy it in the AWS Control Tower management account in your AWS Control Tower home Region. By default, CfCT creates and runs the landing zone configuration package by setting up a configuration pipeline in that account and Region.

Prepare for deployment

You have some options when you prepare your AWS CloudFormation template for initial deployment. You can choose the configuration source, and you can allow for manual approval of pipeline deployments. The next two sections explain more about these options.

Choose your configuration source

By default, the template creates an Amazon Simple Storage Service (Amazon S3) bucket to store the sample configuration package as a .zip file called _custom-control-tower-configuration.zip. The Amazon S3 bucket is version controlled, and you can update the configuration package as needed. For information about updating the configuration package, refer to Using Amazon S3 as the Configuration Source.

Note

The sample configuration package filename begins with an underscore (_) so that AWS CodePipeline is not initiated automatically. When you have finished customizing the configuration package, be sure to upload the custom-control-tower-configuration.zip without the underscore (_) in order to begin the deployment in AWS CodePipeline.
You can change the storage location of the configuration package from the S3 bucket to an AWS CodeCommit Git repository by selecting the AWS CodeCommit option in the AWS CloudFormation parameter. This option enables you to manage version control easily.

**Note**
When you're using the default S3 bucket, be sure that the configuration package is available as a .zip file. When you're using the AWS CodeCommit repository, be sure that the configuration package is placed in the repository without zipping the files. For information about creating and storing the configuration package in AWS CodeCommit, see [CfCT customization guide](#).

You can use the sample configuration package to create your own custom configuration source. When you are ready to deploy your custom configurations, manually upload the configuration package, either to the Amazon S3 bucket or to the AWS CodeCommit repository. The pipeline begins automatically when you upload the configuration file.

**Note**
When you're using AWS CodeCommit to store the configuration package, it is not necessary to zip the package. For information about creating and storing the configuration package in AWS CodeCommit, refer to [CfCT customization guide](#).

**Choose your pipeline configuration approval parameters**

The AWS CloudFormation template provides the option to approve the deployment of configuration changes manually. By default, manual approval is not enabled. For more information, refer to [Step 1. Launch the stack](#).

When manual approval is enabled, the configuration pipeline validates the customizations made to the AWS Control Tower file manifest and templates, then it pauses the process until manual approval is granted. After approval, the deployment proceeds to run the remaining pipeline stages, as needed, to implement the *Customizations for AWS Control Tower* (CfCT) functionality.

You can use the manual approval parameter to keep the customizations for the AWS Control Tower configuration from running, by rejecting the first attempt to run through the pipeline. This
parameter also allows you to validate customizations for the AWS Control Tower configuration changes manually, as a final control before implementation.

**To update Customizations for AWS Control Tower**

If you have previously deployed CfCT, you must update the AWS CloudFormation stack to get the latest version of the CfCT framework. For details, refer to [Update the Stack](#).

**Template and source code**

Customizations for AWS Control Tower (CfCT) are deployed in your management account after you launch your AWS CloudFormation template. You can download the template from GitHub and then launch it from [AWS CloudFormation](https://aws.amazon.com/cloudformation). The `customizations-for-aws-control-tower.template` deploys the following:

- An AWS CodeBuild project
- An AWS CodePipeline project
- An Amazon EventBridge rule
- AWS Lambda functions
- An Amazon Simple Queue Service queue
- An Amazon Simple Storage Service bucket with a sample configuration package
- AWS Step Functions

**Note**

You can customize the template based on your specific requirements.

**Source code repository**

You can visit our [GitHub repository](https://github.com/aws/aws-control-tower) to download the templates and scripts for CfCT, and to share your landing zone customizations with others.
Automated deployment

Before you launch the automated deployment, review the considerations. Follow the step-by-step instructions in this section to configure and deploy the solution into your AWS Control Tower management account.

**Time to deploy:** Approximately 15 minutes

**Prerequisites**

CfCT must be deployed in your AWS Control Tower management account, and in your AWS Control Tower home Region. If you do not have a landing zone set up, see [Getting started].

**Deployment steps**

The procedure for deploying CfCT consists of two major steps. For detailed instructions, follow the links for each step.

**Step 1. Launch the stack**

- Launch the AWS CloudFormation template into your management account.
- Review the template parameters, and adjust if necessary.

**Step 2. Create a custom package**

- Create a custom configuration package.

⚠️ **Important**

To download the correct AWS CloudFormation template and launch CfCT, follow the GitHub link given in this section. Do not follow older links to any previously specified S3 buckets.

**Step 1. Launch the stack**

The AWS CloudFormation template in this section deploys *Customizations for AWS Control Tower* (CfCT) in your account.
Note
You are responsible for the cost of the AWS services used while you run CfCT. For more details, see Cost.

1. To launch Customizations for AWS Control Tower, download the template from GitHub and then launch it from AWS CloudFormation.

2. The template launches in the US East (N. Virginia) Region by default. To launch CfCT in a different AWS Region, use the Region selector in the console navigation bar.

Note
CfCT must be launched in the same Region and account where you deployed your AWS Control Tower landing zone, which is your home Region.

3. On the Create stack page, verify that the correct template URL shows in the URL text box and choose Next.

4. On the Specify stack details page, assign a name to your CfCT stack.

5. Under Parameters, review the following parameters and modify them in the template, if necessary.

<table>
<thead>
<tr>
<th>Pipeline Configuration</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipeline Approval Stage</td>
<td>No</td>
<td>Choose whether to change the pipeline configuration from the default automated approval stage to a manual approval stage. For more information, see the section called “CfCT customization guide”.</td>
</tr>
<tr>
<td>Pipeline Approval Email Address</td>
<td>&lt;Optional Input&gt;</td>
<td>The email address for approval notifications.</td>
</tr>
<tr>
<td>Pipeline Configuration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Parameter</td>
<td>Default</td>
<td>Description</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To use this parameter, you must set the Pipeline Approval Stage parameter to Yes.</td>
</tr>
</tbody>
</table>

| AWS CodePipeline Source | Amazon S3 | The source for AWS CodePipeline to help you select where to store and configure the CfCT customizations. |

| AWS CodeCommit Setup |  |  |  |
|----------------------|----------------|----------------|
| Parameter            | Default        | Description     |
| Existing CodeCommit Repository? | No | Choose whether to use an existing CodeCommit Git repository. If you choose Yes, you must set the CodePipeline Source parameter to AWS CodeCommit. |
### AWS CodeCommit Setup

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CodeCommit Repository Name</strong></td>
<td>custom-control-tower-configuration</td>
<td>The Git repository name. To use this parameter, you must set the <strong>AWS CodePipeline Source</strong> parameter to AWS CodeCommit. This name is used to create a new Git repository, and must be unique. If you provide the name of an existing Git repository, you must set the <strong>Existing CodeCommit Repository?</strong> parameter to Yes and enter the exact name of that repository.</td>
</tr>
<tr>
<td><strong>CodeCommit Branch Name</strong></td>
<td>main</td>
<td>The Git branch where the customization package is stored. Git repositories can have many branches. This is the default name given to the branch in the Git repository. To use this parameter, you must set the <strong>CodePipeline Source</strong> parameter to AWS CodeCommit.</td>
</tr>
</tbody>
</table>
### AWS CloudFormation StackSets Configuration

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region Concurrency Type</td>
<td>PARALLEL</td>
<td>Select the concurrency type of deploying StackSets operations in Regions. This setting is applicable for create, update, and delete workflows. Other allowed value is SEQUENTIAL.</td>
</tr>
<tr>
<td>Max Concurrent Percentage</td>
<td>100</td>
<td>The maximum percentage of accounts in which to perform this operation at one time. The max allowed value is 100. For more information, refer to Stack Set operation options.</td>
</tr>
<tr>
<td>Failure Tolerance Percentage</td>
<td>10</td>
<td>The percentage of accounts, per Region, for which this stack operation can fail before AWS CloudFormation stops the operation in that Region. The minimum allowed value is 0 and max allowed value is 100. For more information, refer to Stack Set operation options.</td>
</tr>
</tbody>
</table>

6. Choose Next.

7. On the Configure stack options page, choose Next.

8. On the Review page, review and confirm the settings. Be sure to check the box acknowledging that the template will create AWS Identity and Access Management (IAM) resources.

9. Choose Create stack to deploy the stack.
You can view the status of the stack in the AWS CloudFormation console in the **Status** column. You should see a status of **CREATE_COMPLETE** in approximately 15 minutes.

**Step 2. Create a custom package**

With the launched stack, you can add customizations to your AWS Control Tower landing zone and service control policies (SCPs) by customizing the included configuration package. For detailed instructions on creating a custom package, refer to the [CfCT customization guide](#).

⚠️ **Note**

The pipeline does not run without uploading the custom configuration package.

**Update the stack**

If you previously deployed *Customizations for AWS Control Tower* (CfCT), follow the procedure to update the AWS CloudFormation stack for the latest version of the CfCT framework.

⚠️ **Important**

Before you can complete the following procedure, you must upload the latest template [from GitHub](#) to an Amazon Simple Storage Service (Amazon S3) bucket. For instructions on how to get started with Amazon S3, see [Getting started with Amazon S3](#) in the *Amazon Simple Storage Service User Guide*.

1. Sign in to the [AWS CloudFormation console](#).
2. Select your existing *Customizations for AWS Control Tower* (CfCT) CloudFormation stack, and then select **Update**.
3. Under **Prerequisite — Prepare template**, select **Replace current template**.
4. Under **Specify template**, do the following:
   a. For **Template source**, select **Replace current template**.
   b. For **Amazon S3 URL**, enter the template URL for the template that you previously uploaded from GitGub to Amazon S3, and then choose **Next**.
c. Verify that the template URL is correct. Then choose Next and Next again.

5. Under Parameters, review the parameters for the template and modify them as necessary. Refer to Step 1. Launch the stack for details about the parameters.

6. Choose Next.

7. On the Configure stack options page, choose Next.

8. On the Review page, review and confirm the settings. Be sure to check the box acknowledging that the template might create AWS Identity and Access Management (IAM) resources.

9. Choose View change set and verify the changes.

10. Choose Update stack to deploy the stack.

   You can view the status of the stack in the AWS CloudFormation console in the Status column. You should see a status of UPDATE_COMPLETE in approximately 15 minutes.

Delete a stack set

You can delete a stack set if you've enabled stack set deletion in the manifest file. By default, the enable_stack_set_deletion parameter is set to false. In this configuration, no action is taken to delete the associated stack set when a resource is removed from the CfCT manifest file.

If you change the value of enable_stack_set_deletion to true in the manifest file, CfCT deletes the stack set and all of its resources when you remove an associated resource from the manifest file.

This capability is supported in v2 of the manifest file.

⚠️ Important

When you initially set the value of enable_stack_set_deletion to true, the next time you invoke CfCT, ALL resources that begin with the prefix CustomControlTower-, which have the associated key tag Key:AWS_Solutions, Value: CustomControlTowerStackSet, and which are not declared in the manifest file, are staged for deletion.

Here's an example of how to set this parameter in a manifest.yaml file:

```
version: 2021-03-15
```
Set up Amazon S3 as the configuration source

When you set up *Customizations for AWS Control Tower*, it stores an initial configuration file, called `_custom-control-tower-configuration.zip` file in an Amazon Simple Storage Service (Amazon S3) bucket, named `custom-control-tower-configuration-account-ID-region`.

**Note**

If you choose to download and modify this file, remember to zip the changes, save as a new file named `custom-control-tower-configuration.zip`, and then upload it back to the same Amazon S3 bucket.
The Amazon S3 bucket is the default source of the pipeline. When default settings are in place, uploading a configuration zip file without the underscore prefix in the file name to the S3 bucket will initiate the pipeline automatically.

The zip file is protected by Server-Side Encryption (SSE) with AWS Key Management Service (AWS KMS), and denial of use of the KMS key. For access to the zip file, you must update the KMS Key Policy to specify the role(s) that should be granted access. The role may be an administrator role, a user, or both. Follow this procedure:

1. Navigate to the AWS Key Management Service console.
2. In Customer Managed Keys, select CustomControlTowerKMSKey.
3. Select the Key policy tab. Then, select Edit.
4. In the Edit key policy page, find the Allow Use of the key section in the code, and add one of the following permissions:
   - To add an administration role:
     arn:aws:iam::<account-ID>:role/<administrator-role>
   - To add a user:
     arn:aws:iam::<account-ID>:user/<username>
5. Select Save Changes.
6. Navigate to the Amazon S3 console, find the S3 bucket containing the configuration zip file, and select download.
7. Make the necessary configuration changes to the manifest file and template files. For information about customizing the manifest and template files, see the section called “CfCT customization guide”.
8. Upload your changes:
   a. Zip the modified configuration files, and name the file: custom-control-tower-configuration.zip.
   b. Upload the file to Amazon S3 using SSE with the AWS KMS master-key: CustomControlTowerKMSKey.
Collection of operational metrics

Customizations for AWS Control Tower (CfCT) includes an option to send anonymous operational metrics to AWS. AWS uses this data to understand how customers are using CfCT, as well as other related services and products. When data collection is enabled, the following information is sent to AWS:

- **Solution ID**: The AWS solution identifier
- **Unique ID (UUID)**: Randomly generated, unique identifier for each deployment
- **Timestamp**: Data-collection timestamp
- **State Machine Execution Count**: Incrementally counts the number of times this state machine runs
- **Manifest Version**: The manifest version used in the configuration

ℹ️ **Note**

AWS owns the data it collects. Data collection is subject to the [AWS Privacy Policy](https://aws.amazon.com/privacy/).

To opt out of sending anonymous operational metrics to AWS, complete one of the following tasks:

- **Update the AWS CloudFormation template mapping section as follows**:

  ```
  from
  
  AnonymousData:
  
  SendAnonymousData:
  
  Data: Yes
  
  to
  
  AnonymousData:
  
  SendAnonymousData:
  
  Data: No
  
- **After CfCT is deployed, find the /org/primary/metrics_flag SSM parameter key in the Parameter Store console, and update the value to No.**
CfCT customization guide

The *Customizations for AWS Control Tower* (CfCT) guide is for administrators, DevOps professionals, independent software vendors, IT infrastructure architects, and systems integrators who want to customize and extend their AWS Control Tower environments for their company and customers. It provides information about customizing and extending the AWS Control Tower environment with the CfCT customization package.

### Note
To deploy and configure (CfCT), you must deploy and process a configuration package through AWS CodePipeline. The following sections describe the process in detail.

#### Code pipeline overview

The configuration package requires Amazon Simple Storage Service (Amazon S3) and AWS CodePipeline. The configuration package contains these items:

- A manifest file
- An accompanying set of templates
- Other JSON files for describing and implementing your AWS Control Tower environment customizations

By default, the `custom-control-tower-configuration.zip` configuration package is loaded in an Amazon S3 bucket with the following naming convention:

`custom-control-tower-configuration-accountID-region`

### Note
By default, CfCT creates an Amazon S3 bucket to store the pipeline source, but you can change the source location to an AWS CodeCommit repository. For more information, see [Edit a pipeline in CodePipeline](https://docs.aws.amazon.com/codepipeline/latest/userguide/pipeline-overview.html) in the *AWS CodePipeline User Guide*.

The *manifest file* is a text file that describes the AWS resources you can deploy to customize your landing zone. CodePipeline does these tasks:
exercises the manifest file, accompanying set of templates, and other JSON files
performs manifest and template validations
invokes sections in the manifest file to run specific pipeline stages.

When you update the configuration package by customizing the manifest file and removing
the underscore (_) from the configuration package filename, it automatically initiates AWS CodePipeline.

**Note**
The sample configuration package filename begins with an underscore (_) so that
AWS CodePipeline is not automatically triggered. When you have completed the
customization of the configuration package, upload the file custom-control-tower-
configuration.zip without the underscore (_) in order to trigger the deployment in
AWS CodePipeline.

**AWS CodePipeline stages**

The CfCT pipeline requires several AWS CodePipeline stages to implement and update your AWS Control Tower environment.

1. **Source stage**

The source stage is the initial stage. Your customized configuration package initiates this pipeline stage. The source for the AWS CodePipeline can be either an Amazon S3 bucket or an AWS CodeCommit repository, in which the configuration package can be hosted.

2. **Build stage**

The build stage requires AWS CodeBuild to validate the contents of the configuration package. These checks include testing the manifest.yaml file syntax and schema, along with all AWS CloudFormation templates included in the package or remotely hosted, using AWS CloudFormation validate-template and cfn_nag. If the manifest file and AWS CloudFormation templates pass the tests, the pipeline continues to the next stage. If the tests fail, you can review the CodeBuild logs to identify the issue and edit the configuration source file as needed.

3. **Manual approval stage (optional)**
The manual approval stage is optional. If you enable this stage, it provides additional control over the configuration pipeline. It pauses the pipeline during deployment, until an approval is given. You can opt into manual approval by editing the **Pipeline Approval Stage** parameter to **Yes** when you launch the stack.

4. **Service control policy stage**

   The service control policy stage invokes the service control policy state machine to call AWS Organizations APIs that create service control policies (SCPs).

5. **AWS CloudFormation resource stage**

   The AWS CloudFormation resource stage invokes the stack set state machine to deploy the resources specified in the list of accounts or organizational units (OUs), which you provided in the manifest file. The state machine creates the AWS CloudFormation resources in the order that they are specified in the manifest file, unless a resource dependency is specified.

### Define a custom configuration

You'll define your custom AWS Control Tower configuration with the manifest file, the accompanying set of templates, and other JSON files. You'll package these files into a folder structure and place them in the Amazon S3 bucket as a `.zip` file, as shown in the following code example.

#### Custom configuration folder structure

```
- manifest.yaml
- policies/                        [optional]
  - service control policies files (*.json)
- templates/                       [optional]
  - template files for AWS CloudFormation Resources (*.template)
```

The previous example depicts the structure of a custom configuration folder. The folder structure stays the same whether you choose Amazon S3 or an AWS CodeCommit repository as your source storage location. If you choose Amazon S3 as source storage, compress all the folders and files into a `custom-control-tower-configuration.zip` file, and upload only the `.zip` file to the designated Amazon S3 bucket.
**Note**
If you are using AWS CodeCommit, place the files in the repository without zipping the files.

---

The manifest file

The manifest.yaml file is a text file that describes your AWS resources. The following example shows the structure of the manifest file.

```yaml
---
region: String
version: 2021-03-15

resources:
  #set of CloudFormation resources or SCP policies
...
```

As shown in the previous code example, the first two lines of the manifest file specify the values of the `region` and the `version` keywords. Here are the definitions of those keywords.

**region** – A text string for the AWS Control Tower default Region. This value must be a valid AWS Region name (such as `us-east-1`, `eu-west-1`, or `ap-southeast-1`). The AWS Control Tower home Region is the default when you create custom AWS Control Tower resources (such as AWS CloudFormation StackSets), unless a more resource-specific Region is specified.

```
region: your-home-region
```

**version** – The manifest schema version number. The latest supported version is 2021-03-15.

```
version: 2021-03-15
```

**Note**
We strongly recommend you use the latest version. To update manifest properties in the latest version, refer to [Manifest version upgrades](#).
The next keyword shown in the previous example is the **resources** keyword. The **resources** section of the manifest file is highly structured. It contains a detailed list of AWS resources, which will be deployed automatically by the CfCCT pipeline. These descriptions of resources and their available parameters are given in the next section.

### The resources section of the manifest file

This topic describes the **resources** section of the manifest file, where you'll define the resources that are required for your customizations. This section of the manifest file begins at the keyword **resources** and continues to the end of the file.

The **resources** section of the manifest file specifies the AWS CloudFormation StackSets or AWS Organizations SCPs, which CfCCT deploys automatically through the code pipeline. You can list OUs, accounts, and Regions to deploy stack instances.

Stack instances are deployed at the account level instead of the OU level. SCPs are deployed at the OU level. For more information, see [Build your own customizations](#).

The following example template describes the possible entries that are available for the **resources** section of the manifest file.

```json
resources: # List of resources
  - name: [String]
    resource_file: [String] [Local File Path, S3 URI, S3 URL]
    deployment_targets: # account and/or organizational unit names
      accounts: # array of strings, [0-9]{12}
        - 012345678912
        - AccountName1
      organizational_units: # array of strings
        - OuName1
        - OuName2
    deploy_method: scp | stack_set
    parameters: # List of parameters [SSM, Alfred, Values]
      - parameter_key: [String]
        parameter_value: [String]
    export_outputs: # list of ssm parameters to store output values
      - name: /org/member/test-ssm/app-id
        value: $[output_ApplicationId]
    regions: # list of strings
      - [String]
```

Define a custom configuration
The remainder of this topic gives detailed definitions for the keywords shown in the previous code example.

**name** – The name that is associated with the AWS CloudFormation StackSets. The string you provide assigns a more user-friendly name for a stack set.

- **Type:** String
- **Required:** Yes
- **Valid Values:** a-z, A-Z, 0-9, and an underscore (_). Any other character is automatically replaced with an underscore (_).

**description** – The description for the resource.

- **Type:** String
- **Required:** No

**resource_file** – This file can be specified as the relative location to the manifest file, an Amazon S3 URI or URL that points to an AWS CloudFormation template or AWS Organizations service control policy in JSON for creating AWS CloudFormation resources or SCPs.

- **Type:** String
- **Required:** Yes

1. The following example shows the `resource_file`, given as a relative location to the resource file inside the configuration package.

```yaml
resources:
  - name: SecurityRoles
    resource_file: templates/custom-security.template
```

2. The following example shows the resource file given as an Amazon S3 URI

```yaml
resources:
  - name: SecurityRoles
    resource_file: s3://bucket-name/[key-name]
```

3. The following example shows the resource file given as an Amazon S3 HTTPS URL
resources:
  - name: SecurityRoles
    resource_file: https://bucket-name.s3.Region.amazonaws.com/key-name

**Note**

If you provide an Amazon S3 URL, verify that the bucket policy allows read access for the AWS Control Tower management account from which you are deploying CfCT. If you provide an Amazon S3 HTTPS URL, verify that the path uses dot notation. For example, S3.us-west-1. CfCT does not support endpoints that contain a dash between S3 and the Region, such as S3-us-west-2.

4. The following example shows an Amazon S3 bucket policy and an ARN where resources are stored.

```json
{
  "Version": "2012-10-17",
  "Statement": [  
    {
      "Effect": "Allow",
      "Principal": {"AWS": "arn:aws:iam::AccountId:root"},
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::my-bucket/*"
    }
  ]
}
```

You'll replace the `AccountId` variable shown in the example with the AWS account ID for the management account that is deploying CfCT. For more examples, refer to [Bucket policy examples](https://docs.aws.amazon.com/AmazonS3/latest/userguide/bucket-access-control-operators-admin.html) in the Amazon Simple Storage Service User Guide.

**parameters** – Specifies the name and value for AWS CloudFormation parameters.

- **Type:** MapList
- **Required:** No
The parameters section contains pairs of key/value parameters. The following pseudo template outlines the parameters section.

```json
parameters:
  - parameter_key: [String]
    parameter_value: [String]
```

- **parameter_key** – The key associated with the parameter.
  - **Type:** String
  - **Required:** Yes (under parameters property)
  - **Valid Values:** a-z, A-Z, and 0-9

- **parameter_value** – The input value associated with the parameter.
  - **Type:** String
  - **Required:** Yes (under parameters property)

**deploy_method** – The deployment method for deploying resource(s) into the account. Currently, deploy_method supports deploying resources using the stack_set option for resource deployment through AWS CloudFormation StackSets, or the scp option if you are deploying SCPs.

- **Type:** String
- **Valid Values:** stack_set | scp
- **Required:** Yes

**deployment_targets** – List of accounts or Organizational Units (OUs), into which CfCT will deploy the AWS CloudFormation resources, specified as accounts or organizational_units.

**Note**

If you want to deploy an SCP, the target must be an OU, not an account.

- **Type:** List of string
  - account name or account number to indicate that this resource will be deployed into the given account list, or
  - OU names to indicate that this resource will be deployed into the given OU list.
- **Required:** At least one of accounts or organizational_units
• accounts:

  **Type:** List of string account name or account number to indicate that this resource will be deployed into the given account list.

• organizational_units:

  **Type:** List of string OU names to indicate that this resource will be deployed into a given OU list. If you provide an OU that doesn't contain accounts and the `accounts` property is not added, CfCT only creates the stack set.

  <div class="note">
  The organization's management account ID is not an allowed value. CfCT does not support deploying stack instances into the organization's management account.
  </div>

**export_outputs** – List of name/value pairs that denote SSM parameter keys. These SSM parameter keys allow you to store template outputs into the SSM parameter store. The output is intended for reference by other resources, defined earlier in the manifest file.

```yaml
export_outputs: # List of SSM parameters
  - name: [String]
    value: [String]
```

• **Type:** List of name and value key pairs. The `name` contains the name string of an SSM parameter store key, and `value` contains the parameter's value string.

• **Valid Values:** Any string or the `$[output_CfnOutput-Logical-ID]` variable where `CfnOutput-Logical-ID` corresponds to the template output variable. For more information about the Outputs section in an AWS CloudFormation template, see [Outputs](https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/outputs-section-structure.html) in the AWS CloudFormation User Guide.

• **Required:** No

For example, the following code snippet stores the template VPCID output variable into the SSM parameter key that's named `/org/member/audit/vpc_id`.

```yaml
export_outputs: # List of SSM parameters
  - name: /org/member/audit/VPC-ID
```
regions – List of Regions in which CfCT will deploy the AWS CloudFormation stack instances.

- **Type:** Any list of AWS commercial Region names, to indicate that this resource will be deployed into the given Region list. If this keyword does not exist in the manifest file, the resources are deployed in the home Region only.
- **Required:** No

**Root OU**

CfCT supports **Root** as a value for an organizationl unit (OU) under organizational_units in manifest V2 version (2021-03-15).

- If you choose the deployment method of scp, when you add Root under organizational_units, AWS Control Tower applies the policies to all of the OUs under the Root. If you choose the deployment method of stack_set, when you add Root under organizational_units, CfCT deploys the stack sets in all the accounts under the Root that are enrolled in AWS Control Tower, except for the management account.

- As per AWS Control Tower best practices, the management account is intended only to manage member accounts and for billing purposes. Do not run production workloads in the AWS Control Tower management account.

In accordance with best practices guidance, AWS Control Tower deployment puts the management account under the Root OU, so that it has full access and does not run additional resources. For this reason, the **AWSControlTowerExecution** role is not deployed to the management account.

- We recommend that you follow these best practices for the management account. If you have a specific use case that requires you to deploy stacksets in the management account, include **accounts** as a deployment target and specify the management account. Otherwise, do not
include **accounts** as a deployment target. You must create the missing resources, including required IAM roles, in the management account.

To deploy stacksets in the management account, include **accounts** as a deployment target and specify the management account. Otherwise, do not include accounts as a deployment target.

```yaml
---
region: your-home-region
version: 2021-03-15
resources:
...truncated...
  deployment_targets:
    organizational_units:
      - Root

---
```

**Note**

The Root OU feature is supported only in the V2 version of the manifest file (2021-03-15). If you add **Root** as an OU under **organizational_units**, do not add any other OUs.

**Nested OU**

CfCT supports listing one or more nested OUs under the **organizational_units** keyword in manifest V2 version (2021-03-15).

A complete path (excluding Root) for the nested OU is required, using a colon as the separator between OUs. For deployment method **scp**, AWS Control Tower deploys the SCPs to the last OU in the nested OU path. For deployment method **stack_set**, AWS Control Tower deploys the stack sets to all the accounts under the last OU in the nested OU path.

For example, consider the path 0UName1:0UName2:0UName3. The last OU in the path is 0UName3. CfCT deploys the SCPs to 0UName3 and stack sets to all of the accounts directly under 0UName3, only.

```yaml
---
```
Build your own customizations

To build your own customizations, you can modify the `manifest.yaml` file by adding or updating service control policies (SCPs) and AWS CloudFormation resources. For resources that must be deployed, you can add or remove accounts and OUs. You can add or modify the templates in the package folders, create your own folders, and reference the templates or folders in the `manifest.yaml` file.

This section explains the two main parts of building your own customizations:

- how to set up your own configuration package for service control policies
- how to set up your own configuration package for AWS CloudFormation stack sets

Set up a configuration package for service control policies

This section explains how to create a configuration package for service control policies (SCPs). The two main parts of this process are (1) prepare the manifest file, and (2) prepare your folder structure.

**Step 1: Edit the manifest.yaml file**

Use the sample `manifest.yaml` file as your starting point. Enter all necessary configurations. Add the `resource_file` and `deployment_targets` details.
The following snippet shows the default manifest file.

```yaml
---
region: us-east-1
version: 2021-03-15
resources: []
```

The value for `region` is added automatically during deployment. It must match the Region where you deployed CfCT. This Region must be the same as the AWS Control Tower region.

To add a custom SCP in the example-configuration folder in the zip package stored in the Amazon S3 bucket, open the example-manifest.yaml file and begin editing.

```yaml
---
region: your-home-region
version: 2021-03-15
resources:
- name: test-preventive-controls
description: To prevent from deleting or disabling resources in member accounts
deploy_method: scp
#Apply to the following OU(s)
deployment_targets:
  organizational_units: #array of strings
    - OUName1
    - OUName2
...truncated...
```

The following snippet shows an example of a customized manifest file. You can add more than one policy in a single change.

```yaml
---
region: us-east-1
version: 2021-03-15
resources:
- name: block-s3-public-access
description: To S3 buckets to have public access
```
Step 2: Create a folder structure

You can skip this step if you are using an Amazon S3 URL for the resource file and using parameters with key/value pairs.

You must include an SCP policy in JSON format to support the manifest, because the manifest file references the JSON file. Ensure that the file paths match the path information provided in the manifest file.

- A policy JSON file contains the SCPs to be deployed to OUs.

The following snippet shows the folder structure for the sample manifest file.

- manifest.yaml
- policies/
  - block-s3-public.json

The following snippet is an example of a block-s3-public.json policy file.

```json
{
  "Version":"2012-10-17",
  "Statement":[
    {
      "Sid":"GuardPutAccountPublicAccessBlock",
      "Effect":"Deny",
      "Action":"s3:PutAccountPublicAccessBlock",
      "Resource":"arn:aws:s3:::*"
    }
  ]
}
```
Set up a configuration package for AWS CloudFormation StackSets

This section explains how to set up a configuration package for AWS CloudFormation StackSets. The two main parts of this process are: (1) prepare the manifest file, and (2) update the folder structure.

**Step 1: Edit the existing manifest file**

Add the new AWS CloudFormation StackSets information to the manifest file that you previously edited.

Just for review, the following snippet contains the same customized manifest file that was shown previously to set up a configuration package for SCPs. Now you can edit this file further, to include the details about your resources.

```yaml
---
region: us-east-1
version: 2021-03-15

resources:

- name: block-s3-public-access
  description: To S3 buckets to have public access
  resource_file: policies/block-s3-public.json
  deploy_method: scp
  #Apply to the following OU(s)
  deployment_targets:
    organizational_units: #array of strings
    - OUName1
    - OUName2

The following snippet shows an edited sample manifest file that contains the resources details. The order of resources determines the execution order for creating resources dependencies. You can edit the following example manifest file according to your business requirements.

```yaml
---
region: your-home-region
version: 2021-03-15

...truncated...

resources:
```
The following example shows that you can add more than one AWS CloudFormation resource in the manifest file.

```yaml
---
region: us-east-1
version: 2021-03-15
resources:
```
- name: block-s3-public-access
  description: To S3 buckets to have public access
  resource_file: policies/block-s3-public.json
  deploy_method: scp
  #Apply to the following OU(s)
  deployment_targets:
    organizational_units: #array of strings
    - Custom
    - Sandbox

- name: transit-network
  resource_file: templates/transit-gateway.template
  parameter_file: parameters/transit-gateway.json
  deploy_method: stack_set
  deployment_targets:
    accounts: # array of strings, [0-9]{12}
    - Prod
    - 123456789123 #Network
    organizational_units: #array of strings
    - Custom
  export_outputs:
    - name: /org/network/transit-gateway-id
      value: $[output_TransitGatewayID]
  regions:
    - us-east-1

Step 2: Update the folder structure

When you update the folder structure, you can include all supporting AWS CloudFormation template files and SCP policy files that are in the manifest file. Verify that the file paths match what is provided in the manifest file.

- A template file contains the AWS resources to be deployed in OUs and accounts.
- A policy file contains the input parameters used in the template file.

The following example shows the folder structure for the sample manifest file created in Step 1.

- manifest.yaml
- policies/
  - block-s3-public.json
- templates/
The ‘alfred’ helper and the AWS CloudFormation parameter files

CfCT provides you with a mechanism known as the *alfred* helper to get the value for an SSM Parameter Store key that's defined in the AWS CloudFormation template. Using the *alfred* helper, you can use values that are stored in the SSM Parameter Store and without updating the AWS CloudFormation template. For more information, see [What is an AWS CloudFormation template?](#) in the *AWS CloudFormation User Guide*.

**Important**

The *alfred* helper has two limitations. Parameters are available only in the home region of the AWS Control Tower management account. As a best practice, consider working with values that don't change from stack instance to stack instance. When the 'alfred' helper retrieves parameters, it chooses a random stack instance from the stack set that exports the variable.

**Example**

Suppose that you have two AWS CloudFormation stack sets. *Stack set 1* has one stack instance and deploys to one account in one Region. It creates an Amazon VPC and subnets in an availability zone, and the VPC ID and subnet ID must be passed into *stack set 2* as parameter values. Before the VPC ID and subnet ID can be passed to *stack set 2*, the VPC ID and subnet ID must be stored in *stack set 1* using `AWS::SSM::Parameter`. For more information, see [AWS::SSM::Parameter](#) in the *AWS CloudFormation User Guide*.

**AWS CloudFormation stack set 1:**

In the following snippet, the *alfred* helper can gets value for the VPC ID and subnet ID from the parameter store and pass them as input to the StackSet state machine.

```yaml
VpcIdParameter:
  Type: AWS::SSM::Parameter
  Properties:
    Name: '/stack_1/vpc/id'
    Description: Contains the VPC id
    Type: String
```
Value: !Ref MyVpc

SubnetIdParameter:
  Type: AWS::SSM::Parameter
  Properties:
    Name: '/stack_1/subnet/id'
    Description: Contains the subnet id
    Type: String
    Value: !Ref MySubnet

AWS CloudFormation stack set 2:

The snippet shows the parameters that are specified in the AWS CloudFormation stack 2 manifest.yaml file.

parameters:
  - parameter_key: VpcId
    parameter_value: $[alfred_ssm_/stack_1/vpc/id]
  - parameter_key: SubnetId
    parameter_value: $[alfred_ssm_/stack_1/subnet/id]

AWS CloudFormation stack set 2.1:

The snippet shows that you can list alfred_ssm properties to support parameters of type CommaDelimitedList. For more information, see Parameters in the AWS CloudFormation User Guide.

parameters:
  - parameter_key: VpcId # Type: String
    parameter_value: $[alfred_ssm_/stack_1/vpc/id']
  - parameter_key: SubnetId # Type: String
    parameter_value: $[alfred_ssm_/stack_1/subnet/id']
  - parameter_key: AvailabilityZones # Type: CommaDelimitedList
    parameter_value:
      - "$[alfred_ssm_/availability_zone_1]"
      - "$[alfred_ssm_/availability_zone_2]"

JSON schema for the customization package

The JSON schema for the customization package for CfCT is located in the source code repository on GitHub. You can use the schema with many of your favorite development...
Manifest version upgrades

For information about the latest version of Customizations for AWS Control Tower (CfCT), see the CHANGELOG.md file in the GitHub repository.

⚠️ Warning

Version 2.2.0 of Customizations for AWS Control Tower (CfCT) introduced a manifest schema (version 2021-03-15) to align with related AWS service APIs. The manifest schema allows a single manifest.yaml file to manage supported resources (AWS CloudFormation templates and SCPs) through decoupled DevOps workflows.

We strongly recommend that you update the manifest schema from version 2020-01-01 to version 2021-03-15 or later.

CfCT continues to support version 2021-03-15 and 2020-01-01 of the manifest.yaml file. No changes to your existing configuration are required. However, version 2020-01-01 is at End of Support. We no longer provide updates or add enhancements to version 2020-01-01. The Root OU and nested OU features aren't supported in version 2020-01-01.

Deprecated properties in manifest version 2021-03-15:

- organization_policies
- policy_file
- apply_to_accounts_in_ou
- cloudformation_resources
- template_file
- deploy_to_account
- deploy_to_ou
- ssm_parameters
Mandatory upgrade steps

When you upgrade to the manifest schema version 2021-03-15 version, here are the changes you must make to update your files. The next sections outline mandatory and recommended changes for the transition.

Organizations polices

1. Move the SCPs under organization_policies under new property resources.
2. Change the policy_file property to new property resource_file.
3. Change the apply_to_accounts_in_ou to new property deployment_targets. The OU list should be defined under sub-property organizational_units. The accounts sub-property is not supported for organizations policies.
4. Add a new property deploy_method with the value scp.

AWS CloudFormation resources

1. Move the CloudFormation resources under cloudformation_resources under new property resources.
2. Change the template_file property to new property resource_file.
3. Change the deploy_to_ou to new property deployment_targets. The OU list should be defined under sub-property organizational_units.
4. Change the deploy_to_accounts to new property deployment_targets. The account list should be defined under sub-property accounts.
5. Change the ssm_parameters property to new property export_outputs.

Highly recommended upgrade steps

AWS CloudFormation parameters

1. Change the parameter_file property to new property parameters.
2. Remove the file path in the value of the parameter_file property.
3. Copy the parameter key and parameter value from the existing parameter JSON file into the new format for the parameters property. This would help you manage them in the manifest file.
Note

The parameter_file property is supported in manifest version 2021-03-15.
Networking in AWS Control Tower

AWS Control Tower provides basic support for networking through VPCs.

If the default configuration or capabilities of the AWS Control Tower VPC do not meet your needs, you can use other AWS services to configure your VPC. For more information about how to work with VPCs and AWS Control Tower, see Building a Scalable and Secure Multi-VPC AWS Network Infrastructure.

Related topics

- For information about how AWS Control Tower works when you enroll accounts that have existing VPCs, see Enrolling existing accounts with VPCs.
- With Account Factory, you can provision accounts that include an AWS Control Tower VPC, or you can provision accounts without a VPC. For information about how to delete the AWS Control Tower VPC or configure AWS Control Tower accounts without a VPC, see Walkthrough: Configure AWS Control Tower Without a VPC.
- For information about how to change account settings for VPCs, see the Account Factory documentation on updating an account.
- For more information about working with networking and VPCs in AWS Control Tower, see the section about Networking on the Related information page of this User Guide.

VPCs and AWS Regions in AWS Control Tower

As a standard part of account creation, AWS creates an AWS-default VPC in every Region, even the Regions you are not governing with AWS Control Tower. This default VPC is not the same as a VPC that AWS Control Tower creates for a provisioned account, but the AWS default VPC in a non-governed Region may be accessible to IAM users.

Administrators can enable the Region deny control, so that your end-users do not have permission to connect to a VPC in a Region that's supported by AWS Control Tower but outside your governed Regions. To configure the Region deny control, go to the Landing zone settings page and select Modify settings.

The Region deny control blocks API calls to most services in non-governed Regions. For more information, see Deny access to AWS based on the requested AWS Region.
Note

The Region deny control may not prevent IAM users from connecting to an AWS default VPC in a Region where AWS Control Tower is not supported.

Optionally, you can remove the AWS default VPCs in non-governed Regions. To list the default VPC in a Region you can use a CLI command similar to this example:

```
aws ec2 --region us-west-1 describe-vpcs --filter Name=isDefault,Values=true
```

**Overview of AWS Control Tower and VPCs**

Here are some essential facts about AWS Control Tower VPCs:

- The VPC created by AWS Control Tower when you provision an account in Account Factory is not the same as the AWS default VPC.

- When AWS Control Tower sets up a new account in a supported AWS Region, AWS Control Tower automatically deletes the default AWS VPC, and it sets up a new VPC configured by AWS Control Tower.

- Each AWS Control Tower account is allowed one VPC that's created by AWS Control Tower. An account can have additional AWS VPCs within the account limit.

- Every AWS Control Tower VPC has three Availability Zones in all Regions except for the US West (N. California) Region, `us-west-1`, and two Availability Zones in `us-west-1`. By default, each Availability Zone is assigned one public subnet and two private subnets. Therefore, in Regions except US West (N. California) each AWS Control Tower VPC contains nine subnets by default, divided across three Availability Zones. In US West (N. California), six subnets are divided across two Availability Zones.

- Each of the subnets in your AWS Control Tower VPC is assigned a unique range, of equal size.

- The number of subnets in a VPC is configurable. For more information about how to change your VPC subnet configuration, see the [Account Factory topic](#).

- Because the IP addresses do not overlap, the six or nine subnets within your AWS Control Tower VPC can communicate with each other in an unrestricted manner.
When working with VPCs, AWS Control Tower makes no distinction at the Region level. Every subnet is allocated from the exact CIDR range that you specify. The VPC subnets can exist in any Region.

Notes

Manage VPC costs

If you set the Account Factory VPC configuration so that public subnets are enabled when provisioning a new account, Account Factory configures VPC to create a NAT Gateway. You will be billed for your usage by Amazon VPC.

VPC and control settings

If you provision Account Factory accounts with VPC internet access settings enabled, that Account Factory setting overrides the control Disallow internet access for an Amazon VPC instance managed by a customer. To avoid enabling internet access for newly provisioned accounts, you must change the setting in Account Factory. For more information, see Walkthrough: Configure AWS Control Tower Without a VPC.

CIDR and Peering for VPC and AWS Control Tower

This section is intended primarily for network administrators. Your company's network administrator usually is the person who selects the overall CIDR range for your AWS Control Tower organization. The network administrator then allocates subnets from within that range for specific purposes.

When you choose a CIDR range for your VPC, AWS Control Tower validates the IP address ranges according to the RFC 1918 specification. Account Factory allows a CIDR block of up to /16 in the ranges of:

- 10.0.0.0/8
- 172.16.0.0/12
- 192.168.0.0/16
- 100.64.0.0/10 (only if your internet provider allows usage of this range)
The /16 delimiter allows up to 65,536 distinct IP addresses.

You can assign any valid IP addresses from the following ranges:

- 10.0.x.x to 10.255.x.x
- 172.16.x.x – 172.31.x.x
- 192.168.0.0 – 192.168.255.255 (no IPs outside of 192.168 range)

If the range you specify is outside of these, AWS Control Tower provides an error message.

The default CIDR range is 172.31.0.0/16.

When AWS Control Tower creates a VPC using the CIDR range you select, it assigns the identical CIDR range to every VPC for every account you create within the organizational unit (OU). Due to the default overlap of IP addresses, this implementation does not initially permit peering among any of your AWS Control Tower VPCs in the OU.

**Subnets**

Within each VPC, AWS Control Tower divides your specified CIDR range evenly into nine subnets (except in US West (N. California), where it is six subnets). None of the subnets within a VPC overlap. Therefore, they all can communicate with each other, within the VPC.

In summary, by default, subnet communication within the VPC is unrestricted. The best practice for controlling communication among your VPC subnets, if needed, is to set up access control lists with rules that define the permitted traffic flow. Use security groups for control of traffic among specific instances. For more information about setting up security groups and firewalls in AWS Control Tower, see [Walkthrough: Set Up Security Groups in AWS Control Tower With AWS Firewall Manager](#).

**Peering**

AWS Control Tower does not restrict VPC-to-VPC peering for communication across multiple VPCs. However, by default, all AWS Control Tower VPCs have the same default CIDR range. To support peering, you can modify the CIDR range in the settings of Account Factory so that the IP addresses do not overlap.

If you change the CIDR range in the settings of Account Factory, all new accounts that are subsequently created by AWS Control Tower (using Account Factory) are assigned the new CIDR
range. The old accounts are not updated. For example, you can create an account, then change the CIDR range and create a new account, and the VPCs allocated to those two accounts can be peered. Peering is possible because their IP address ranges are not identical.
Required roles and permissions

AWS Control Tower uses IAM roles to help manage access to resources.

For general information about roles, see User groups, roles, and permission sets.

About permissions

• For information about IAM groups and their permissions in AWS Control Tower, see IAM Identity Center Groups for AWS Control Tower.
• For information about permissions required to provision accounts, see Permissions required for accounts.
• For information about console permissions required for AWS Control Tower, see Permissions Required to Use the AWS Control Tower Console.

About roles

• For information about how to create a role, including permissions designed for programmatic access, see Create roles and assign permissions, and Programmatic roles and trust relationships for the AWS Control Tower audit account.
• For information about other roles that AWS Control Tower uses to manage your accounts, see Using identity-based policies (IAM policies) for AWS Control Tower, and the Managed policies for AWS Control Tower.
• For information about AWS Control Tower and AWS Config roles, see AWS Control Tower ConfigRecorderRole.
• For information about roles that AWS Control Tower uses to aggregate AWS Config information for your accounts, see How AWS Control Tower aggregates AWS Config rules in unmanaged OUs and accounts.
• For information about how to protect your resources as you are assigning roles and permissions, see Optional conditions for your role trust relationships, Optionally configure AWS KMS keys, and Prevent cross-service impersonation.
• For specific information about automated account provisioning in AWS Control Tower with IAM roles, see Automated Account Provisioning With IAM Roles.
How AWS Control Tower works with roles to create and manage accounts

In general, roles are a part of identity and access management (IAM) in AWS. For general information about IAM and roles in AWS, see the IAM roles topic in the AWS IAM User Guide.

Roles and account creation

AWS Control Tower creates a customer's account by calling the CreateAccount API of AWS Organizations. When AWS Organizations creates this account, it creates a role within that account, which AWS Control Tower names by passing in a parameter to the API. The name of the role is AWSControlTowerExecution.

AWS Control Tower takes over the AWSControlTowerExecution role for all accounts created by Account Factory. Using this role, AWS Control Tower baselines the account and applies mandatory (and any other enabled) controls, which results in creation of other roles. These roles in turn are used by other services, such as AWS Config.

Note

To baseline an account is to set up its resources, which include Account Factory templates, sometimes referred to as blueprints, and controls. The baselining process also sets up the centralized logging and security audit roles on the account, as part of deploying the templates. AWS Control Tower baselines are contained in the roles that you apply to every enrolled account.

For more information about accounts and resources, see About AWS accounts in AWS Control Tower.

The AWSControlTowerExecution role, explained

The AWSControlTowerExecution role must be present in all enrolled accounts. It allows AWS Control Tower to manage your individual accounts and report information about them to your Audit and Log Archive accounts.

The AWSControlTowerExecution role can be added into an account in several ways, as follows:
• For accounts in the Security OU (sometimes called core accounts), AWS Control Tower creates the role at the time of initial AWS Control Tower setup.

• For an Account Factory account created through the AWS Control Tower console, AWS Control Tower creates this role at the time of account creation.

• For a single account enrollment, we ask customers to manually create the role and then enroll the account in AWS Control Tower.

• When extending governance to an OU, AWS Control Tower uses the StackSet-AWSControlTowerExecutionRole to create the role in all accounts in that OU.

Purpose of the AWSControlTowerExecution role:

• AWSControlTowerExecution allows you to create and enroll accounts, automatically, with scripts and Lambda functions.

• AWSControlTowerExecution helps you configure your organization's logging, so that all the logs for every account are sent to the logging account.

• AWSControlTowerExecution allows you to enroll an individual account in AWS Control Tower. First, you must add the AWSControlTowerExecution role to that account. For steps on how to add the role, see Manually add the required IAM role to an existing AWS account and enroll it.

How the AWSControlTowerExecution role works with OUs:

The AWSControlTowerExecution role ensures that your selected AWS Control Tower controls apply automatically to every individual account, in each OU, in your organization, as well as to every new account you create in AWS Control Tower. As a result:

• You can provide compliance and security reports more easily, based on the auditing and logging features embodied by AWS Control Tower controls.

• Your security and compliance teams can verify that all requirements are met, and that no organizational drift has occurred.

For more information about drift, see Detect and resolve drift in AWS Control Tower.

To summarize, the AWSControlTowerExecution role and its associated policy gives you flexible control of security and compliance across your entire organization. Therefore, breaches of security or protocol are less likely to occur.
Optional conditions for your role trust relationships

You can impose conditions in your role trust policies, to restrict the accounts and resources that interact with certain roles in AWS Control Tower. We strongly recommend that you restrict access to the AWSControlTowerAdmin role, because it allows wide access permissions.

To help prevent an attacker from gaining access to your resources, manually edit your AWS Control Tower trust policy to add at least one aws:SourceArn or aws:SourceAccount conditional to the policy statement. As a security best practice, we strongly recommend adding the aws:SourceArn condition, because it is more specific than aws:SourceAccount, limiting access to a specific account and a specific resource.

If you don't know the full ARN of the resource, or if you are specifying multiple resources, you can use the aws:SourceArn condition with wildcards (*) for the unknown portions of the ARN. For example, arn:aws:controltower:*:123456789012:* works if you don't wish to specify a Region.

The following example demonstrates the use of the aws:SourceArn IAM condition with your IAM role trust polices. Add the condition in your trust relationship for the AWSControlTowerAdmin role, because the AWS Control Tower service principal interacts with it.

As shown in the example, the source ARN is of the format:
arn:aws:controltower:{$HOME_REGION}:{$CUSTOMER_AWSACCOUNT_id}:*

Replace the strings ${HOME_REGION} and ${CUSTOMER_AWSACCOUNT_id} with your own home Region and account ID of the calling account.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": {
                "Service": ["controltower.amazonaws.com"],
            },
            "Action": "sts:AssumeRole",
            "Condition": {
                " ArnEquals": {
```
In the example, the Source ARN designated as `arn:aws:controltower:us-west-2:012345678901:*` is the only ARN allowed to perform the `sts:AssumeRole` action. In other words, only users who can sign in to the account ID 012345678901, in the us-west-2 Region, are allowed to perform actions that require this specific role and trust relationship for the AWS Control Tower service, designated as `controltower.amazonaws.com`.

The next example shows the `aws:SourceAccount` and `aws:SourceArn` conditions applied to the role trust policy.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Effect": "Allow",
         "Principal": {
            "Service": [
               "controltower.amazonaws.com"
            ]
         },
         "Action": "sts:AssumeRole",
         "Condition": {
            "StringEquals": {
               "aws:SourceAccount": "012345678901"
            },
            "StringLike": {
               "aws:SourceArn": "arn:aws:controltower:us-west-2:012345678901:*"
            }
         }
      }
   ]
}
```

The example illustrates the `aws:SourceArn` condition statement, with an added `aws:SourceAccount` condition statement. For more information, see [Prevent cross-service impersonation](#).
For general information about permission policies in AWS Control Tower see Manage access to resources.

Recommendations:

We recommend that you add conditions to the roles that AWS Control Tower creates, because those roles are directly assumed by other AWS services. For more information, see the example for AWSControlTowerAdmin, shown previously in this section. For the AWS Config recorder role, we recommend adding the aws:SourceArn condition, specifying the Config recorder ARN as the permitted source ARN.

For roles such as AWSControlTowerExecution or the roles that can be assumed by the AWS Control Tower Audit account in all managed accounts, we recommend that you add the aws:PrincipalOrgID condition to the trust policy for these roles, which validates that the principal accessing the resource belongs to an account in the correct AWS organization. Do not add the aws:SourceArn condition statement, because it will not work as expected.

Note

In case of drift, it is possible that an AWS Control Tower role may be reset under certain circumstances. It is recommended that you re-check the roles periodically, if you have customized them.

AWS Control Tower ConfigRecorderRole

AWS Control Tower deploys this role as a resource in the log archive account, the audit account, and in each account created by Account Factory. The role can be assumed by AWS Config, as shown in the role trust relationship artifact, given later in this section. This role is over 1000 lines long, because it allows multiple actions by many AWS services. The role grants permission to AWS Config to record configurations and deliver them to the delivery channels.

Note

When you create this IAM role, you give AWS Control Tower permission to manage the AWS Config resources as defined in the permissions policy for this role. The first time that AWS Control Tower uses this role, AWS Config might create a new service-linked role in your account. That role grants AWS Config access to other AWS resources that are required to complete your original AWS Control Tower request.
To learn more about how AWS Config or other services create and use service-linked roles, see AWS Services That Work with IAM. Look for the services that have Yes in the Service-Linked Role column to indicate that they support using service-linked roles. Choose a Yes with a link to view the service-linked role documentation for that service. For a definition of AWS service-linked role, see AWS service-linked role.

Role name: aws-controltower-ConfigRecorderRole

Deployed in these accounts: Log archive, Audit, Account factory accounts

Assumed by: AWS Config

You can view the details and JSON artifacts of the AWS managed policies for this role.

- **ReadOnlyAccess**
- To view the complete JSON policy artifact for the AWS Control Tower ConfigRecorderRole, see AWS_ConfigRole.

**Role trust relationship**

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": {
                "Service": "config.amazonaws.com"
            },
            "Action": "sts:AssumeRole"
        }
    ]
}
```

**How AWS Control Tower aggregates AWS Config rules in unmanaged OUs and accounts**

The AWS Control Tower management account creates an organization-level aggregator, which assists in detecting external AWS Config rules, so that AWS Control Tower does not need to gain
access to unmanaged accounts. The AWS Control Tower console shows you how many externally created AWS Config rules you have for a given account. You can view details about those external rules in the **External Config Rule Compliance** tab of the **Account details** page.

To create the aggregator, AWS Control Tower adds a role with the permissions required to describe an organization and list the accounts under it. The `AWSControlTowerConfigAggregatorRoleForOrganizations` role requires the `AWSConfigRoleForOrganizations` managed policy and a trust relationship with `config.amazonaws.com`.

Here is the IAM policy (JSON artifact) attached to the role:

```
{
   "Version": "2012-10-17",
   "Statement": [
   {
      "Effect": "Allow",
      "Action": [
         "organizations:ListAccounts",
         "organizations:DescribeOrganization",
         "organizations:ListAWSServiceAccessForOrganization"
      ],
      "Resource": "*"
   }
   ]
}
```

Here is the `AWSControlTowerConfigAggregatorRoleForOrganizations` trust relationship:

```
{
   "Version": "2012-10-17",
   "Statement": [
   {
      "Effect": "Allow",
      "Principal": {
         "Service": "config.amazonaws.com"
      },
      "Action": "sts:AssumeRole"
   }
   ]
}
```
To deploy this functionality in the management account, the following permissions are added in the managed policy `AWSControlTowerServiceRolePolicy`, which is used by the `AWSControlTowerAdmin` role when it creates the AWS Config aggregator:

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
                "config:PutConfigurationAggregator",
                "config:DeleteConfigurationAggregator",
                "iam:PassRole"
            ],
            "Resource": [
                "arn:aws:iam:::role/service-role/AWSControlTowerConfigAggregatorRoleForOrganizations",
                "arn:aws:config:::config-aggregator/"
            ]
        },
        {
            "Effect": "Allow",
            "Action": "organizations:EnableAWSServiceAccess",
            "Resource": "*"
        }
    ]
}
```

New resources created: `AWSControlTowerConfigAggregatorRoleForOrganizations` and `aws-controltower-config-aggregator-for-organizations`

When you are ready, you can enroll accounts individually, or enroll them as a group by registering an OU. When you've enrolled an account, if you create a rule in AWS Config, AWS Control Tower detects the new rule. The aggregator shows the number of external rules and provides a link to the AWS Config console where you can view the details of each external rule for your account. Use the information in the AWS Config console and the AWS Control Tower console to determine whether you have the appropriate controls enabled for the account.
Programmatic roles and trust relationships for the AWS Control Tower audit account

You can sign into the audit account and assume a role to review other accounts programmatically. The audit account does not allow you to log in to other accounts manually.

The audit account gives you programmatic access to other accounts, by means of some roles that are granted to AWS Lambda functions only. For security purposes, these roles have trust relationships with other roles, which means that the conditions under which the roles can be utilized are strictly defined.

The AWS Control Tower stack set StackSet-AWSControlTowerBP-BASELINE-ROLES creates these programmatic-only, cross-account roles in the audit account:

- `aws-controltower-AdministratorExecutionRole`
- `aws-controltower-AuditAdministratorRole`
- `aws-controltower-ReadOnlyExecutionRole`
- `aws-controltower-AuditReadOnlyRole`

`ReadOnlyExecutionRole`: Note that this role allows the audit account to read objects in Amazon S3 buckets across the entire organization (in contrast to the SecurityAudit policy, which allows for metadata access only).

`aws-controltower-AdministratorExecutionRole`:

- Has administrator permissions
- Cannot be assumed from the console
- Can be assumed only by a role in the audit account – the `aws-controltower-AuditAdministratorRole`

The following artifact shows the trust relationship for `aws-controltower-AdministratorExecutionRole`. The placeholder number 012345678901 will be replaced by the Audit_acct_ID number for your audit account.

```json
{
  "Version": "2012-10-17",
```
aws-controltower-AuditAdministratorRole:

- Can be assumed by the AWS Lambda service only
- Has permission to perform read (Get) and write (Put) operations on Amazon S3 objects with names that start with the string `log`

Attached policies:

1. **AWSLambdaExecute** – AWS managed policy

2. **AssumeRole-aws-controltower-AuditAdministratorRole** – inline policy – Created by AWS Control Tower, artifact follows.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Action": ["sts:AssumeRole"],
      "Resource": ["arn:aws:iam::*:role/aws-controltower-AdministratorExecutionRole"],
      "Effect": "Allow"
    }
  ]
}
```

The following artifact shows the trust relationship for `aws-controltower-AuditAdministratorRole`:
aws-controltower-ReadOnlyExecutionRole:

- Cannot be assumed from the console
- Can be assumed only by another role in the audit account – the AuditReadOnlyRole

The following artifact shows the trust relationship for aws-controltower-ReadOnlyExecutionRole. The placeholder number 012345678901 will be replaced by the Audit_acct_ID number for your audit account.

aws-controltower-AuditReadOnlyRole:

- Can be assumed by the AWS Lambda service only
- Has permission to perform read (Get) and write (Put) operations on Amazon S3 objects with names that start with the string log
Attached policies:

1. **AWSLambdaExecute** – AWS managed policy

2. **AssumeRole-aws-controltower-AuditReadOnlyRole** – inline policy – Created by AWS Control Tower, artifact follows.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Action": [
            "sts:AssumeRole"
         ],
         "Resource": [
            "arn:aws:iam::*:role/aws-controltower-ReadOnlyExecutionRole"
         ],
         "Effect": "Allow"
      }
   ]
}
```

The following artifact shows the trust relationship for aws-controltower-AuditAdministratorRole:

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Effect": "Allow",
         "Principal": {
            "Service": "lambda.amazonaws.com"
         },
         "Action": "sts:AssumeRole"
      }
   ]
}
```

**Automated Account Provisioning With IAM Roles**

To configure Account Factory accounts in a more automated way, you can create Lambda functions in the AWS Control Tower management account, which assumes the **AWSControlTowerExecution** role.
role in the member account. Then, using the role, the management account performs the desired configuration steps in each member account.

If you're provisioning accounts using Lambda functions, the identity that will perform this work must have the following IAM permissions policy, in addition to AWSServiceCatalogEndUserFullAccess.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "AWSControlTowerAccountFactoryAccess",
            "Effect": "Allow",
            "Action": [
                "sso:GetProfile",
                "sso:CreateProfile",
                "sso:UpdateProfile",
                "sso:AssociateProfile",
                "sso:CreateApplicationInstance",
                "sso:GetSSOStatus",
                "sso:GetTrust",
                "sso:CreateTrust",
                "sso:UpdateTrust",
                "sso:GetPeregrineStatus",
                "sso:GetApplicationInstance",
                "sso:ListDirectoryAssociations",
                "sso:ListPermissionSets",
                "sso:GetPermissionSet",
                "sso:ProvisionApplicationInstanceForAWSAccount",
                "sso:ProvisionApplicationProfileForAWSAccountInstance",
                "sso:ProvisionSAMLProvider",
                "sso:ListProfileAssociations",
                "sso-directory:ListMembersInGroup",
                "sso-directory:AddMemberToGroup",
                "sso-directory:SearchGroups",
                "sso-directory:SearchGroupsWithGroupName",
                "sso-directory:SearchUsers",
                "sso-directory:CreateUser",
                "sso-directory:DescribeGroups",
                "sso-directory:DescribeDirectory",
                "sso-directory:GetUserPoolInfo",
                "controltower:CreateManagedAccount",
                "controltower:DescribeManagedAccount",
            ]
        }
    ]
}
```
The permissions `sso:GetPeregrineStatus`, `sso:ProvisionApplicationInstanceForAWSAccount`, `sso:ProvisionApplicationProfileForAWSAccountInstance`, and `sso:ProvisionSAMLProvider` are required by AWS Control Tower Account Factory to interact with AWS IAM Identity Center.
Resources in AWS Control Tower

- For general information about resource ownership in AWS Control Tower, see Overview of managing access permissions to your AWS Control Tower resources.
- For information about resources that AWS Control Tower creates in the shared accounts, see About the shared accounts.
- For information about resources that AWS Control Tower creates when it provisions an account through Account Factory, see Resource Considerations for Account Factory.
- To view details about the AWS resource types that are defined by AWS Control Tower, for use with the AWS Control Tower APIs, see the AWS Control Tower resource type reference in the AWS CloudFormation User Guide.
How AWS Regions Work With AWS Control Tower

Currently, AWS Control Tower is supported in the following AWS Regions:

- US East (N. Virginia)
- US East (Ohio)
- US West (Oregon)
- Canada (Central)
- Asia Pacific (Sydney)
- Asia Pacific (Singapore)
- Europe (Frankfurt)
- Europe (Ireland)
- Europe (London)
- Europe (Stockholm)
- Asia Pacific (Mumbai)
- Asia Pacific (Seoul)
- Asia Pacific (Tokyo)
- Europe (Paris)
- South America (São Paulo)
- US West (N. California)
- Asia Pacific (Hong Kong)
- Asia Pacific (Jakarta)
- Asia Pacific (Osaka)
- Europe (Milan)
- Africa (Cape Town)
- Middle East (Bahrain)
- Israel (Tel Aviv)
- Middle East (UAE)
- Europe (Spain)
- Asia Pacific (Hyderabad)
• Europe (Zurich)
• Asia Pacific (Melbourne)

About your home Region

When you create a landing zone, the Region that you're using for access to the AWS Management console becomes your home AWS Region for AWS Control Tower. During the creation process, some resources are provisioned in the home Region. Other resources, such as OUs and AWS accounts, are global.

After you've selected a home Region, you cannot change it.

Controls and Regions

Currently, all preventive controls work globally. Detective and proactive controls, however, only work in Regions where AWS Control Tower is supported. For more information about the behavior of controls when you activate AWS Control Tower in a new Region, see Configure your AWS Control Tower Regions.

Configure your AWS Control Tower Regions

This section describes the behavior you can expect when you extend your AWS Control Tower landing zone into a new AWS Region, or remove a Region from your landing zone configuration. Generally, this action is performed through the Update function of the AWS Control Tower console.

Note

We recommend that you avoid expanding your AWS Control Tower landing zone into AWS Regions in which you do not require your workloads to run. Opting out of a Region does not prevent you from deploying resources in that Region, but those resources will remain outside of AWS Control Tower governance.

During configuration of a new Region, AWS Control Tower updates the landing zone, which means that it baselines your landing zone —

• to operate actively in all newly-selected Regions, and
• to cease governing resources in deselected Regions.
Individual accounts within your organizational units (OUs) that are managed by AWS Control Tower are not updated as part of this landing zone update process. Therefore, you must update your accounts by re-registering your OUs.

When configuring your AWS Control Tower Regions, be aware of the following recommendations and limitations:

- Select Regions in which you plan to host AWS resources or workloads.
- Opting out of a Region does not prevent you from deploying resources in that Region, but those resources will remain outside of AWS Control Tower governance.

When you configure your landing zone for new Regions, AWS Control Tower detective controls adhere to the following rules:

- What exists stays the same. Guardrail behavior, detective as well as preventive, is unchanged for existing accounts, in existing OUs, in existing Regions.
- You can’t apply new detective controls to existing OUs containing accounts that are not updated. When you’ve configured your AWS Control Tower landing zone into a new Region (by updating your landing zone), you must update existing accounts in your existing OUs before you can enable new detective controls on those OUs and accounts.
- Your existing detective controls begin working in the newly configured Regions as soon as you update the accounts. When you update your AWS Control Tower landing zone to configure new Regions and then update an account, the detective controls that already are enabled on the OU will begin working on that account in the newly configured Regions.

Configure AWS Control Tower Regions

1. Sign in to the AWS Control Tower console at https://console.aws.amazon.com/controltower
2. In the left-pane navigation menu, choose Landing zone settings.
3. On the Landing zone settings page, in the Details section, choose the Modify settings button in the upper right. You are directed to the update landing zone workflow, because governing new Regions, or removing Regions from governance, requires you to update to the latest landing zone version.
4. Under Additional AWS Regions for governance, search for the Regions you want to govern (or stop governing). The State column indicates which Regions you currently govern, and which ones you don’t.
5. Select the checkbox for each additional Region to govern. Deselect the checkbox for each Region from which you are removing governance.

Note

If you opt not to govern a Region, you can still deploy resources in that Region, but those resources will remain outside of AWS Control Tower governance.

6. Complete the rest of the workflow, then choose Update landing zone.

7. When the landing zone setup completes, Re-register the OUs to update the accounts in your new Regions. For more information, see When to update AWS Control Tower OUs and accounts.

An alternative method of provisioning or updating individual accounts after configuring new Regions is by using the API framework of Service Catalog and the AWS CLI to update the accounts in a batch process. For more information, see Provision and update accounts using automation.

Avoid mixed governance when configuring Regions

It is important to update all accounts in an OU after you extend AWS Control Tower governance to a new AWS Region, and after you remove AWS Control Tower governance from a Region.

Mixed governance is an undesirable situation that can occur if the controls governing an OU are not a complete match to the controls governing each account within an OU. Mixed governance occurs in an OU if accounts are not updated after AWS Control Tower extends governance to a new AWS Region, or removes governance.

In this situation, certain accounts within an OU may have different controls applied in different Regions, when compared to other accounts in the OU, or when compared to the landing zone's overall governance posture.

In an OU with mixed governance, if you provision a new account, that new account receives the same (updated) Region and OU governance posture as the landing zone. However, existing accounts that are not yet updated do not receive the updated Region governance posture.

In general, mixed governance may create contradictory or inaccurate status indicators in the AWS Control Tower console. For example, during mixed governance, opt-in Regions are shown with Not governed status, in registered OUs, for accounts that are not yet updated.
Note
AWS Control Tower does not permit controls to be enabled during a state of mixed governance.

Behavior of controls during mixed governance

- During mixed governance, AWS Control Tower cannot consistently deploy controls that are based on AWS Config rules (that is, detective controls) in Regions that the OU already shows as Governed, because some accounts in the OU have not been updated. You may receive a FAILED_TO_ENABLE error message.

- During mixed governance, if you extend the landing zone's governance to an opt-in Region while any account in the OU has not yet been updated, the EnableControl API operation on the OU fails for detective and proactive controls. You will receive a FAILED_TO_ENABLE error message, because non-updated member accounts within the OU have not yet been opted into those Regions.

- During mixed governance, controls that are part of the Security Hub Service-managed Standard: AWS Control Tower cannot report compliance accurately in Regions where there is a mismatch between the landing zone configuration and the accounts that are not updated.

- Mixed governance does not change the behavior of SCP-based controls (preventive controls), which apply uniformly to every account in an OU, in every governed Region.

Note
Mixed governance is not the same as drift, and it is not reported as drift.

To repair mixed governance

- Choose Update account for each account in the OU that shows Update available status on the Organizations page in the console.

- Choose Re-Register OU on the Organizations page, which automatically updates all accounts in the OU, for OUs with fewer than 300 accounts.
Considerations for activating AWS opt-in Regions

Although most AWS Regions are active by default for your AWS account, certain Regions are activated only when you manually select them. This document refers to those Regions as *opt-in Regions*. In contrast, Regions that are active by default, as soon as your AWS account is created, are referred to as *commercial Regions*, or simply, *Regions*.

The term *opt-in* has a historical basis. Any AWS Regions introduced after March 20, 2019 are considered to be opt-in Regions. Opt-in Regions have higher security requirements than commercial Regions, regarding the sharing of IAM data through accounts that are active in opt-in Regions. All of the data managed through the IAM service is considered identity data, including users, groups, roles, policies, identity providers, their associated data (for example, X.509 signing certificates or context-specific credentials), and other account-level settings, such as password policy and the account alias.

You can activate opt-in Regions automatically during landing zone setup, by selecting them. Your landing zone becomes active in all selected Regions.

If you choose to select an opt-in Region as your AWS Control Tower home Region, activate it first by following the steps in [Enabling a Region](#), when signed in to the AWS Management Console. To bring your own existing Log Archive and Audit accounts from an opt-in Region, manually activate that Region first.

The AWS opt-in Regions include several Regions in which AWS Control Tower is available:

- Asia Pacific (Hong Kong) Region, ap-east-1
- Asia Pacific (Jakarta) Region, ap-southeast-3
- Asia Pacific (Osaka) Region, ap-northeast-3
- Europe (Milan) Region, eu-south-1
- Africa (Cape Town) Region, af-south-1
- Middle East (Bahrain) Region, me-south-1
- Israel (Tel Aviv), il-central-1
- Middle East (UAE) Region, me-central-1
- Europe (Spain) Region, eu-south-2
- Asia Pacific (Hyderabad) Region, ap-south-2
- Europe (Zurich) Region, eu-central-2
AWS Control Tower has some controls that work differently in the opt-in Regions than in commercial Regions. For more information, see Control limitations. Here are some considerations to keep in mind as you deploy workloads into opt-in Regions.

**Governing or activating?**

Remember that governing a Region is an action that you can select from the AWS Control Tower console, so that controls can be applied in the Region. Activating or deactivating an opt-in Region is a different action that you can choose in the AWS console, which opens the Region to your account, so that you can deploy resources and workloads in the Region.

**Behavioral considerations**

- If you choose to govern opt-in Regions, we recommend that you do not deactivate (opt-out of) any of your governed opt-in Regions, because it can lead to failure of your workloads. AWS Control Tower does not allow deactivation of a governed Region from within the AWS Control Tower console, but be sure that you do not deactivate governed Regions from a source outside AWS Control Tower, such as the AWS Billing console or AWS SDK.

- When AWS Control Tower extends governance to an opt-in Region, it activates (opts-in) to the Region in all member accounts. When you remove a Region from governance, AWS Control Tower does not deactivate (opt-out of) the Region in the member accounts.

- During Region deselection, AWS Control Tower skips removing resources from an opt-in Region if that Region was deactivated manually for an account from a source outside AWS Control Tower, such as the AWS Billing console or AWS SDK. We recommend that you remove resources from the Regions you've deactivated, or you may receive unexpected billing charges for those resources.

- If your landing zone is decommissioned, AWS Control Tower cleans up resources in all the governed Regions, including the opt-in Regions. However, AWS Control Tower does not deactivate the opt-in Regions. You can deactivate the opt-in Regions as an additional step after decommissioning.

- If your home Region is an opt-in Region, and if you intend to enroll existing accounts as your Log Archive and Audit accounts, you must manually activate the opt-in Region before you can select it as the home Region for your landing zone. See Enabling a Region.
If AWS Control Tower is set up with an opt-in Region as your home Region, and if you visit the AWS Control Tower service from the AWS console in any other Region, the console does not redirect you automatically to the home Region.

The underlying API has capacity limits, which may increase latency from a few minutes to many hours, depending on the number of Regions, accounts, and service load. As a best practice, opt-in only to those the AWS Regions where you will run workloads, and opt-in one Region at a time.

**Important limitations for governance and controls**

- If you currently have enabled an AWS Control Tower control that is not supported in an opt-in Region, you will not be able to extend AWS Control Tower governance into that opt-in Region until the control is supported in that Region. For more information see [Control limitations](#).
- If you extend AWS Control Tower governance into an opt-in Region in which a specific control is not supported, you will not be able to enable that control in any Region until the control is supported in all the Regions you are governing with AWS Control Tower For more information see [Control limitations](#).
- If all 22 commercial Regions where AWS Control Tower is available are activated, including opt-in Regions, the upper limit on the number of accounts per organizational unit (OU), when extending governance to an OU, is reduced. The limit is 220 instead of 300 accounts. This reduction is due to StackSet limitations. If you require to extend governance to OUs with more than 220 accounts, reduce the number of activated Regions.

**Configure the Region deny control**

AWS Control Tower offers two Region deny controls. One control, GRREGIONDENY, when activated, applies to the entire landing zone. Another control, CTMULTISERVICEPV1, when activated, can apply to specific OUs that you specify. For more information see [Deny access to AWS based on the requested AWS Region](#) and [Region deny control applied to the OU](#).

The Region deny control, GRREGIONDENY is unique, because it applies to the landing zone as a whole, rather than to any specific OU. To configure the Region deny control, go to the Landing zone settings page and select Modify settings.

- This setting can be changed at a later time.
- When enabled, this control applies to all registered OUs.
- This control cannot be configured for individual OUs.
**Note**

Before you enable the Region deny control, be sure that you do not have existing resources in these Regions, because you will not have access to your resources after you apply the control. While the control is enabled, you will not be able to deploy resources in the denied Regions.

The Region deny control prohibits access to AWS services, based on your AWS Control Tower Region configuration. It denies access to AWS Regions with status **Not Governed**. The Region deny control also denies access to Regions in which AWS Control Tower is not available. You cannot deny access to your home Region. Certain global AWS services, such as IAM and AWS Organizations, are exempt from the Region deny control. To learn more, see [Deny access to AWS based on the requested AWS Region](#).

When you enable the control, it applies to all registered, top-level OUs in your hierarchy, and it is inherited by OUs lower in the chain. When you remove the control, it is removed on all registered OUs, all non-governed Regions in AWS Control Tower remain in a **Not governed** status, and you can deploy resources in Regions outside of AWS Control Tower availability.

- **Full control name**: Deny access to AWS based on the requested AWS Region
- **Guardrail description**: Disallows access to unlisted operations in global and regional services outside of the specified Regions.
- **This is an elective control with preventive guidance.**

To view the template for the Region deny control SCP, see [Deny access to AWS based on the requested AWS Region](#) in the AWS Control Tower Guardrail reference. The AWS Control Tower SCP is similar to [the SCP for AWS Organizations](#), but not identical.

You can determine Regional service endpoints on the [Regional services page](#).

**Considerations for the OU-level Region deny control**

The primary consideration about the OU-level Region deny control is to determine how it will interact with the landing zone region deny control, if both are activated. For more information, see [Region deny control applied to the OU](#).
Provision and manage accounts in AWS Control Tower

This chapter includes an overview and procedures for provisioning and managing member accounts in your AWS Control Tower landing zone.

It also includes an overview and procedures for enrolling an existing AWS account into AWS Control Tower.

For more information about accounts in AWS Control Tower, see [About AWS accounts in AWS Control Tower](#). For information about enrolling multiple accounts into AWS Control Tower, see [Register an existing organizational unit with AWS Control Tower](#).

⚠️ Note

You can perform up to five (5) account-related operations concurrently, including provisioning, updating, and enrolling.

Methods of provisioning

AWS Control Tower provides several methods for creating and updating member accounts. Some methods are primarily console-based, and some methods are primarily automated.

Overview

The standard way to create member accounts is through Account Factory, a console-based product that's part of the Service Catalog. If your landing zone is not in a state of drift, you can use [Create account](#) as a method to add new accounts from the console, as well as [Enroll account](#) to enroll existing AWS accounts into AWS Control Tower.

With Account Factory, you can provision basic accounts, by relying on the AWS Control Tower default settings. You also can provision customized accounts that meet requirements for specialized use cases.

Account Factory Customization (AFC) is a way of provisioning customized accounts from the AWS Control Tower console, and it automates the customization and deployment of your accounts. It allows console-based, automated provisioning, after some one-time setup steps, which eliminates
the need to write scripts or set up pipelines. For more information, see Customize accounts with Account Factory Customization (AFC).

**Console-based methods:**

- Through the Account Factory console that is part of Service Catalog, for basic or customized accounts. Review Provision and manage accounts with Account Factory for details and instructions.
- Through the **Enroll account** feature within AWS Control Tower, if your landing zone is not in a state of drift. See Enroll an existing account.
- In the AWS Control Tower console, you can use Account Factory to create, update, or enroll up to five accounts at the same time.

**Automated methods:**

- **Lambda code:** From your AWS Control Tower landing zone's management account, using Lambda code and appropriate IAM roles. See Automated Account Provisioning With IAM Roles.
- **Terraform:** From the AWS Control Tower Account Factory for Terraform (AFT), which relies on Account Factory and a GitOps model to allow automation of account provisioning and updating. See Provision accounts with AWS Control Tower Account Factory for Terraform (AFT).
- **Account Factory customization in the AWS Control Tower console:** After the setup steps, future provisioning of customized accounts requires no additional configuration or pipeline maintenance. Accounts are provisioned by means of a AWS Service Catalog product called a **blueprint**. A blueprint can use AWS CloudFormation templates, or Terraform templates.

**Note**

AWS CloudFormation blueprints can deploy resources to multiple Regions. Terraform blueprints can deploy resources to a single Region only. By default, that is the home Region.

**What happens when AWS Control Tower creates an account**

New accounts in AWS Control Tower are created and then provisioned by an interaction among AWS Control Tower, AWS Organizations, and AWS Service Catalog. For steps to create an account through the AWS Control Tower console, see Enroll an existing account.
Behind the scenes of account creation

1. You initiate the request, for example, from the AWS Control Tower Account Factory page, or directly from the Service Catalog console, or by calling the Service Catalog ProvisionProduct API.
2. Service Catalog calls AWS Control Tower.
3. AWS Control Tower begins a workflow, which as a first step calls the AWS Organizations CreateAccount API.
4. After AWS Organizations creates the account, AWS Control Tower completes the provisioning process by applying blueprints and controls.
5. Service Catalog continues to poll AWS Control Tower to check for completion of the provisioning process.
6. When the workflow in AWS Control Tower is complete, Service Catalog finalizes the account's state and informs you (the requester) of the result.

Permissions required for accounts

The permissions required for each method of provisioning and updating accounts are discussed in each section, respectively. With the appropriate user group permissions, provisioners can specify standardized baselines and network configurations for any accounts in their organization.

⚠️ Note

When provisioning an account, the account requester always must have the CreateAccount and the DescribeCreateAccountStatus permissions. This permission set is part of the Admin role, and it is given automatically when a requester assumes the Admin role. If you delegate permission to provision accounts, you may need to add these permissions directly for the account requestors.

When you create accounts from the AWS Control Tower console with Account Factory, you must be signed into an account with an IAM user that has the AWSServiceCatalogEndUserFullAccess policy enabled, along with permissions to use the AWS Control Tower console, and you cannot be signed in as the Root user.
For general information about permissions required in AWS Control Tower, see Using identity-based policies (IAM policies) for AWS Control Tower. For information about roles and accounts in AWS Control Tower, see How AWS Control Tower works with roles to create and manage accounts.

Security for your accounts

You can find guidance about best practices to protect the security of your AWS Control Tower management account and member accounts in the AWS Organizations documentation.

- Best practices for the management account
- Best practices for member accounts

About AWS accounts in AWS Control Tower

An AWS account is the container for all your owned resources. These resources include the AWS Identity and Access Management (IAM) identities accepted by the account, which determine who has access to that account. IAM identities can include users, groups, roles, and more. For more information about working with IAM, users, roles, and policies in AWS Control Tower, see Identity and access management in AWS Control Tower.

Resources and account creation time

When AWS Control Tower creates or enrolls an account, it deploys the minimum necessary resource configuration for the account, including resources in the form of Account Factory templates and other resources in your landing zone. These resources may include IAM roles, AWS CloudTrail trails, Service Catalog provisioned products, and IAM Identity Center users. AWS Control Tower also deploys resources, as required by the control configuration, for the organizational unit (OU) in which the new account is destined to become a member account.

AWS Control Tower orchestrates the deployment of these resources on your behalf. It may require several minutes per resource to complete the deployment, so consider the total time before you create or enroll an account. For more information about managing resources in your accounts, see Guidance for creating and modifying AWS Control Tower resources.
Considerations for bringing existing security or logging accounts

Before accepting an AWS account as a security or logging account, AWS Control Tower checks the account for resources that conflict with AWS Control Tower requirements. For example, you may have a logging bucket with the same name that AWS Control Tower requires. Also, AWS Control Tower validates that the account can provision resources; for example, by ensuring that AWS Security Token Service (AWS STS) is enabled, that the account is not suspended, and that AWS Control Tower has permission to provision resources within the account.

AWS Control Tower does not remove any existing resources in the logging and security accounts that you provide. However, if you choose to enable the AWS Region deny capability, the Region deny control prevents access to resources in denied Regions.

View your accounts

The Organization page lists all OUs and accounts in your organization, regardless of OU or enrollment status in AWS Control Tower. You can view and enroll member accounts into AWS Control Tower—individually or by OU groups—if each account meets the prerequisites for enrollment.

To view a specific account on the Organization page, you can choose Accounts only from the dropdown menu at the upper right, and then select the name of your account from the table. Alternatively, you can select the name of the parent OU from the table, and you can view a list of all accounts within that OU on the Details page for that OU.

On the Organization page and the Account details page, you can see the account's State, which is one of these:

- **Not enrolled** – The account is a member of the parent OU, but it is not fully managed by AWS Control Tower. If the parent OU is registered, the account is governed by the preventive controls configured for its registered parent OU, but the OU's detective controls do not apply to this account. If the parent OU is unregistered, no controls apply to this account.

- **Enrolling** – The account is being brought into governance by AWS Control Tower. We are aligning the account with the control configuration for the parent OU. This process may require several minutes per account resource.

- **Enrolled** – The account is governed by the controls configured for its parent OU. It is fully managed by AWS Control Tower.
• **Enrollment failed** – The account could not be enrolled in AWS Control Tower. For more information, see [Common causes for failure of enrollment](#).

• **Update available** – The account has an update available. Accounts in this state are still Enrolled, but the account must be updated to reflect recent changes made to your environment. To update a single account, navigate to the account detail page and select **Update account**.

If you have multiple accounts with this state under a single OU, you can choose to **Re-register** the OU and update those accounts together.

### Resources created in the shared accounts

This section shows the resources that AWS Control Tower creates in the shared accounts, when you set up your landing zone.

For information about member account resources, see [Resource Considerations for Account Factory](#).

### Management account resources

When you set up your landing zone, the following AWS resources are created within your management account.

<table>
<thead>
<tr>
<th>AWS service</th>
<th>Resource type</th>
<th>Resource name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS Organizations</td>
<td>Accounts</td>
<td>audit, log archive</td>
</tr>
<tr>
<td>AWS Organizations</td>
<td>OUs</td>
<td>Security, Sandbox</td>
</tr>
<tr>
<td>AWS Organizations</td>
<td>Service Control Policies</td>
<td>aws-guardrails-*</td>
</tr>
<tr>
<td>AWS CloudFormation</td>
<td>Stacks</td>
<td>AWSControlTowerBP-BASELINE-CLOUDTRAIL-MASTER</td>
</tr>
<tr>
<td>AWS service</td>
<td>Resource type</td>
<td>Resource name</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerBP-BASELINE-CONFIG-MASTER (in version 2.6 and later)</td>
</tr>
<tr>
<td>AWS service</td>
<td>Resource type</td>
<td>Resource name</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AWS CloudFormation</td>
<td>StackSets</td>
<td>AWSControlTowerBP-BASELINE-CLOUDTRAIL (Not deployed in 3.0 and later)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerBP_BASELINE_SERVICE_LINKED_ROLE (Deployed in 3.2 and later)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerBP-BASELINE-CLOUDWATCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerBP-BASELINE-CONFIG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerBP-BASELINE-ROLES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerBP-BASELINE-SERVICE-ROLES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerBP-SECURITY-TOPICS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerGuardrailAWS-GR-AUDIT_BUCKET-PUBLIC-READ-PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerGuardrailAWS-GR-AUDIT_BUCKET-PUBLIC-WRITE-PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerLoggingResources</td>
</tr>
<tr>
<td>AWS service</td>
<td>Resource type</td>
<td>Resource name</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>---------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>AWS Control Tower</td>
<td></td>
<td>AWSControlTowerSecurityResources</td>
</tr>
<tr>
<td>AWS Control Tower</td>
<td></td>
<td>AWSControlTowerExecutionRole</td>
</tr>
<tr>
<td>AWS Service Catalog</td>
<td>Product</td>
<td>AWS Control Tower Account Factory</td>
</tr>
<tr>
<td>AWS Config</td>
<td>Aggregator</td>
<td>aws-controltower-ConfigAggregatorForOrganizations</td>
</tr>
<tr>
<td>AWS CloudTrail</td>
<td>Trail</td>
<td>aws-controltower-BaselineCloudTrail</td>
</tr>
<tr>
<td>Amazon CloudWatch</td>
<td>CloudWatch Logs</td>
<td>aws-controltower/CloudTrailLogs</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td>Roles</td>
<td>AWSControlTowerAdmin</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td></td>
<td>AWSControlTowerStackSetRole</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td></td>
<td>AWSControlTowerCloudTrailRolePolicy</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td>Policies</td>
<td>AWSControlTowerServiceRolePolicy</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td></td>
<td>AWSControlTowerAdminPolicy</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td></td>
<td>AWSControlTowerCloudTrailRolePolicy</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td></td>
<td>AWSControlTowerStackSetRolePolicy</td>
</tr>
</tbody>
</table>
### AWS service

<table>
<thead>
<tr>
<th>AWS service</th>
<th>Resource type</th>
<th>Resource name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS IAM Identity Center</td>
<td>Directory groups</td>
<td>AWSAccountFactory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSAuditAccountAdmins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerAdmins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSLogArchiveAdmins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSLogArchiveViewers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSSecurityAuditors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSSecurityAuditPowerUsers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSServiceCatalogAdmins</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AWS IAM Identity Center</th>
<th>Permission Sets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AWSAdministratorAccess</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSPowerUserAccess</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSServiceCatalogAdminFullAccess</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSServiceCatalogAdminEndUserAccess</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSReadOnlyAccess</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSServiceCatalogAdminFullAccess</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSServiceCatalogAdminEndUserAccess</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSOrganizationsFullAccess</td>
</tr>
</tbody>
</table>

#### Note

The AWS CloudFormation StackSet BP_BASELINE_CLOUDTRAIL is not deployed in landing zone versions 3.0 or later. However, it continues to exist in earlier versions of the landing zone, until you update your landing zone.
Log archive account resources

When you set up your landing zone, the following AWS resources are created within your log archive account.

<table>
<thead>
<tr>
<th>AWS service</th>
<th>Resource type</th>
<th>Resource Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS CloudFormation</td>
<td>Stacks</td>
<td>StackSet-AWSControlTowerGuardrailAWS-GR-AUDIT-BUCKET-PUBLIC-READD-PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControlTowerGuardrailAWS-GR-AUDIT-BUCKET-PUBLIC-WRITED-PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControlTowerBP-BASELINE-CLOUDWATCH-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControlTowerBP-BASELINE-CONFIG-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControlTowerBP-BASELINE-CLOUDTRAIL-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControlTowerBP-BASELINE-SERVICE-ROLE-(In 3.2 and later)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControlTowerBP-BASELINE-ROLES-</td>
</tr>
</tbody>
</table>

Shared account resources
<table>
<thead>
<tr>
<th>AWS service</th>
<th>Resource type</th>
<th>Resource Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS Config</td>
<td>AWS Config Rules</td>
<td>AWSControlTower_AWS-GR_AUDIT_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTower_AWS-GR_AUDIT_BUCKET_PUBLIC_WRITE_PROHIBIT</td>
</tr>
<tr>
<td>AWS CloudTrail</td>
<td>Trails</td>
<td>aws-controltower-BaselineCloudTrail</td>
</tr>
<tr>
<td>Amazon CloudWatch</td>
<td>CloudWatch Event Rules</td>
<td>aws-controltower-ConfigComplianceChangeEventRule</td>
</tr>
<tr>
<td>Amazon CloudWatch</td>
<td>CloudWatch Logs</td>
<td>aws-controltower/CloudTrail Logs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/aws/lambda/aws-controltower-NotificationForwarder</td>
</tr>
<tr>
<td>AWS service</td>
<td>Resource type</td>
<td>Resource Name</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>---------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td>Roles</td>
<td>aws-controltower-AdministratorExecutionRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-CloudWatchLogsRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-ConfigRecorderRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-ForwardSnsNotificationRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-ReadOnlyExecutionRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerExecution</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td>Policies</td>
<td>AWSControlTowerServiceRolePolicy</td>
</tr>
<tr>
<td>Amazon Simple Notification Service</td>
<td>Topics</td>
<td>aws-controltower-SecurityNotifications</td>
</tr>
<tr>
<td>AWS Lambda</td>
<td>Applications</td>
<td>StackSet-AWSControlTowerBP-BASELINE-CLOUDWATCH-*</td>
</tr>
<tr>
<td>AWS Lambda</td>
<td>Functions</td>
<td>aws-controltower-NotificationForwarder</td>
</tr>
<tr>
<td>Amazon Simple Storage Service</td>
<td>Buckets</td>
<td>aws-controltower-logs-*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-s3-access-logs-*</td>
</tr>
</tbody>
</table>
Audit account resources

When you set up your landing zone, the following AWS resources are created within your audit account.

<table>
<thead>
<tr>
<th>AWS service</th>
<th>Resource type</th>
<th>Resource name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS CloudFormation</td>
<td>Stacks</td>
<td>StackSet-AWSControl TowerGuardrailAWS-GR-AUDIT-BUCKET-PUBLIC-READ-D-PROHIBITED-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControl TowerGuardrailAWS-GR-AUDIT-BUCKET-PUBLIC-WRITE-PROHIBITED-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControl TowerBP-BASELINE-CLOUDWATCH-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControl TowerBP-BASELINE-CONFIG-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControl TowerBP-BASELINE-CLOUDTRAIL-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControl TowerBP-BASELINE-SERVICE-ROLES-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControl TowerBP-BASELINE-SERVICE-LINKED-ROLE-(In 3.2 and later)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControl TowerBP-SECURITY-TOPICS-</td>
</tr>
<tr>
<td>AWS service</td>
<td>Resource type</td>
<td>Resource name</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>StackSet-AWSControlTowerBP-BASELINE-ROLES-*</td>
<td>StackSet-AWSControlTowerSecurityResources-*</td>
<td></td>
</tr>
<tr>
<td>AWS Config</td>
<td>Aggregator</td>
<td>aws-controltower-GuardrailsComplianceAggregator</td>
</tr>
<tr>
<td>AWS Config</td>
<td>AWS Config Rules</td>
<td>AWSControlTower_AWS-GR_AUDIT_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTower_AWS-GR_AUDIT_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>AWS CloudTrail</td>
<td>Trail</td>
<td>aws-controltower-BaselineCloudTrail</td>
</tr>
<tr>
<td>Amazon CloudWatch</td>
<td>CloudWatch Event Rules</td>
<td>aws-controltower-ConfigComplianceChangeEventRule</td>
</tr>
<tr>
<td>Amazon CloudWatch</td>
<td>CloudWatch Logs</td>
<td>aws-controltower/CloudTrailLogs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/aws/lambda/aws-controltower-NotificationForwarder</td>
</tr>
<tr>
<td>AWS service</td>
<td>Resource type</td>
<td>Resource name</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td>Roles</td>
<td>aws-controltower-AdministratorExecutionRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-CloudWatchLogsRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-ConfigRecorderRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-ForwardSnsNotificationRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-ReadOnlyExecutionRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-AuditAdministratorRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-AuditReadOnlyRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSControlTowerExecution</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td>Policies</td>
<td>AWSControlTowerServiceRolePolicy</td>
</tr>
<tr>
<td>Amazon Simple Notification Service</td>
<td>Topics</td>
<td>aws-controltower-AggregateSecurityNotifications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-AllConfigNotifications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-controltower-SecurityNotifications</td>
</tr>
<tr>
<td>AWS Lambda</td>
<td>Functions</td>
<td>aws-controltower-NotificationForwarder</td>
</tr>
</tbody>
</table>
About the shared accounts

Three special AWS accounts are associated with AWS Control Tower; the management account, the audit account, and the log archive account. These accounts usually are referred to as shared accounts, or sometimes as core accounts.

- You can select customized names for the audit and log archive accounts when you're setting up your landing zone. For information about changing an account name, see Externally changing AWS Control Tower resource names.
- You also can specify an existing AWS account as an AWS Control Tower security or logging account, during the initial landing zone setup process. This option eliminates the need for AWS Control Tower to create new, shared accounts. (This is a one-time selection.)

For more information about the shared accounts and their associated resources, see Resources created in the shared accounts.

Management account

This AWS account launches AWS Control Tower. By default, the root user for this account and the IAM user or IAM administrator user for this account have full access to all resources within your landing zone.

Note

As a best practice, we recommend signing in as an IAM Identity Center user with Administrator privileges when performing administrative functions within the AWS Control Tower console, instead of the signing in as the root user or IAM administrator user for this account.

For more information about the roles and resources available in the management account, see Resources created in the shared accounts.

Log archive account

The log archive shared account is set up automatically when you create your landing zone.

This account contains a central Amazon S3 bucket for storing a copy of all AWS CloudTrail and AWS Config log files for all other accounts in your landing zone. As a best practice, we recommend
restricting log archive account access to teams responsible for compliance and investigations, and their related security or audit tools. This account can be used for automated security audits, or to host custom AWS Config Rules, such as Lambda functions, to perform remediation actions.

Amazon S3 bucket policy

For AWS Control Tower landing zone version 3.3 and later, accounts must meet an `aws:SourceOrgID` condition for any write permissions to your Audit bucket. This condition ensures that CloudTrail only can write logs on behalf of accounts within your organization to your S3 bucket; it prevents CloudTrail logs outside your organization from writing to your AWS Control Tower S3 bucket. For more information, see [AWS Control Tower landing zone version 3.3](https://docs.aws.amazon.com/controltower/latest/userguide).

For more information about the roles and resources available in the log archive account, see [Log archive account resources](https://docs.aws.amazon.com/controltower/latest/userguide).

**Note**

These logs cannot be changed. All logs are stored for the purposes of audit and compliance investigations related to account activity.

Audit account

This shared account is set up automatically when you create your landing zone.

The audit account should be restricted to security and compliance teams with auditor (read-only) and administrator (full-access) cross-account roles to all accounts in the landing zone. These roles are intended to be used by security and compliance teams to:

- Perform audits through AWS mechanisms, such as hosting custom AWS Config rule Lambda functions.
- Perform automated security operations, such as remediation actions.

The audit account also receives notifications through the Amazon Simple Notification Service (Amazon SNS) service. Three categories of notification can be received:
• **All Configuration Events** – This topic aggregates all CloudTrail and AWS Config notifications from all accounts in your landing zone.

• **Aggregate Security Notifications** – This topic aggregates all security notifications from specific CloudWatch events, AWS Config Rules compliance status change events, and GuardDuty findings.

• **Drift Notifications** – This topic aggregates all the drift warnings discovered across all accounts, users, OUs, and SCPs in your landing zone. For more information on drift, see [Detect and resolve drift in AWS Control Tower](#).

Audit notifications that are triggered within a member account also can send alerts to a local Amazon SNS topic. This functionality allows account administrators to subscribe to audit notifications that are specific to an individual member account. As a result, administrators can resolve issues that affect an individual account, while still aggregating all account notifications to your centralized audit account. For more information, see [Amazon Simple Notification Service Developer Guide](#).

For more information about the roles and resources available in the audit account, see [Audit account resources](#).

For more information about programmatic auditing, see [Programmatic roles and trust relationships for the AWS Control Tower audit account](#).

⚠️ **Important**

The email address you provided for the audit account receives **AWS Notification - Subscription Confirmation** emails from every AWS Region supported by AWS Control Tower. To receive compliance emails in your audit account, you must choose the **Confirm subscription** link within each email from each AWS Region supported by AWS Control Tower.

### About member accounts

Member accounts are the accounts through which your users perform their AWS workloads. These member accounts can be created in Account Factory, by IAM Identity Center users with **Admin** privileges in the Service Catalog console, or by automated methods. When created, these member accounts exist in an OU that was created in the AWS Control Tower console, or registered with AWS Control Tower. For more information, see these related topics:
• **Provision and manage accounts with Account Factory**
• **Automate tasks in AWS Control Tower**
• **AWS Organizations Terminology and Concepts** in the *AWS Organizations User Guide*.

Also see  **Provision accounts with AWS Control Tower Account Factory for Terraform (AFT)**.

---

### Accounts and controls

Member accounts can be *enrolled* in AWS Control Tower, or they can be *unenrolled*. Controls apply differently to enrolled and unenrolled accounts, and controls may apply to accounts in nested OUs based on inheritance.

For information about member account resources that AWS Control Tower allocates, see **Resource Considerations for Account Factory**.

---

**Enroll an existing AWS account**

You can extend AWS Control Tower governance to an individual, existing AWS account when you enroll it into an organizational unit (OU) that's already governed by AWS Control Tower. Eligible accounts exist in *unregistered OUs that are part of the same AWS Organizations organization* as the AWS Control Tower OU.

---

**Note**

You cannot enroll an existing account to serve as your audit or log archive account except during initial landing zone setup.

---

**Set up trusted access first**

Before you can enroll an existing AWS account into AWS Control Tower you must give permission for AWS Control Tower to manage, or *govern*, the account. Specifically, AWS Control Tower requires permission to establish trusted access between AWS CloudFormation and AWS Organizations on your behalf, so that AWS CloudFormation can deploy your stack automatically to the accounts in your selected organization. With this trusted access, the `AWSControlTowerExecution` role conducts activities required to manage each account. That's why you must add this role to each account before you enroll it.
When trusted access is enabled, AWS CloudFormation can create, update, or delete stacks across multiple accounts and AWS Regions with a single operation. AWS Control Tower relies on this trust capability so it can apply roles and permissions to existing accounts before it moves them into a registered organizational unit, and thereby brings them under governance.

To learn more about trusted access and AWS CloudFormation StackSets, see [AWS CloudFormationStackSets and AWS Organizations](#).

**What happens during account enrollment**

During the enrollment process, AWS Control Tower performs these actions:

- Baselines the account, which includes deploying these stack sets:
  - AWSControlTowerBP-BASELINE-CLOUDTRAIL
  - AWSControlTowerBP-BASELINE-CLOUDWATCH
  - AWSControlTowerBP-BASELINE-CONFIG
  - AWSControlTowerBP-BASELINE-ROLES
  - AWSControlTowerBP-BASELINE-SERVICE-ROLES
  - AWSControlTowerBP-BASELINE-SERVICE-LINKED-ROLES
  - AWSControlTowerBP-VPC-ACCOUNT-FACTORY-V1

  It is a good idea to review the templates of these stack sets and make sure that they don’t conflict with your existing policies.

- Identifies the account through AWS IAM Identity Center or AWS Organizations.

- Places the account into the OU that you've specified. Be sure to apply all SCPs that are applied in the current OU, so that your security posture remains consistent.

- Applies mandatory controls to the account by means of the SCPs that apply to the selected OU as a whole.

- Enables AWS Config and configures it to record all resources in the account.

- Adds the AWS Config rules that apply the AWS Control Tower detective controls to the account.

---

**Accounts and organization-level CloudTrail trails**

All member accounts in an OU are governed by the AWS CloudTrail trail for the OU, enrolled or not:
When you enroll an account into AWS Control Tower, your account is governed by the AWS CloudTrail trail for the new organization. If you have an existing deployment of a CloudTrail trail, you may see duplicate charges unless you delete the existing trail for the account before you enroll it in AWS Control Tower.

If you move an account into a registered OU—for example by means of the AWS Organizations console—and you do not proceed to enroll the account into AWS Control Tower, you may wish to remove any remaining account-level trails for the account. If you have an existing deployment of a CloudTrail trail, you will incur duplicate CloudTrail charges.

If you update your landing zone and choose to opt out of organization-level trails, or if your landing zone is older than version 3.0, organization-level CloudTrail trails do not apply to your accounts.

Enrolling existing accounts with VPCs

AWS Control Tower handles VPCs differently when you provision a new account in Account Factory than when you enroll an existing account.

• When you create a new account, AWS Control Tower automatically removes the AWS default VPC and creates a new VPC for that account.

• When you enroll an existing account, AWS Control Tower does not create a new VPC for that account.

• When you enroll an existing account, AWS Control Tower does not remove any existing VPC or AWS default VPC associated with the account.

Tip

You can change the default behavior for new accounts by configuring Account Factory, so it does not set up a VPC by default for accounts in your organization under AWS Control Tower. For more information, see Create an Account in AWS Control Tower Without a VPC.
Prerequisites for enrollment

These prerequisites are required before you can enroll an existing AWS account in AWS Control Tower:

1. To enroll an existing AWS account, the AWSControlTowerExecution role must be present in the account you are enrolling. You can review Enroll an account for details and instructions.

2. In addition to the AWSControlTowerExecution role, the existing AWS account you want to enroll must have the following permissions and trust relationships in place. Otherwise, enrollment will fail.

   Role Permission: AdministratorAccess (AWS managed policy)

   Role Trust Relationship:

   ```
   {
   "Version": "2012-10-17",
   "Statement": [
   {
   "Effect": "Allow",
   "Principal": {
   "AWS": "arn:aws:iam::Management Account ID:root"
   },
   "Action": "sts:AssumeRole"
   }
   ]
   }
   ```

3. We recommend that the account should not have an AWS Config configuration recorder or delivery channel. These may be deleted or modified through the AWS CLI before you can enroll an account. Otherwise, review Enroll accounts that have existing AWS Config resources for instructions on how you can modify your existing resources.

4. The account that you wish to enroll must exist in the same AWS Organizations organization as the AWS Control Tower management account. The account that exists can be enrolled only into the same organization as the AWS Control Tower management account, in an OU that already is registered with AWS Control Tower.

To check other prerequisites for enrollment, see Getting Started with AWS Control Tower.
Note
When you enroll an account into AWS Control Tower, your account is governed by the AWS CloudTrail trail for the AWS Control Tower organization. If you have an existing deployment of a CloudTrail trail, you may see duplicate charges unless you delete the existing trail for the account before you enroll it in AWS Control Tower.

Enroll an existing account

The Enroll account feature is available in the AWS Control Tower console, for enrolling existing AWS accounts so that they are governed by AWS Control Tower. For more information, see Enroll an existing AWS account.

The Enroll account capability is available when your landing zone is not in a state of drift. To view this capability in the console:

- Navigate to the Organization page in AWS Control Tower.
- Find the name of the account you wish to enroll. To find it, choose Accounts only from the dropdown menu at the upper right, and then locate the account name in the filtered table.
- Follow the steps for enrolling an individual account, as shown in the Steps to enroll an account section.

Note
When you are enrolling an existing AWS account, be sure to verify the existing email address. Otherwise, a new account may be created.

Certain errors may require that you refresh the page and try again. If your landing zone is in a state of drift, you may not be able to use the Enroll account capability successfully. You'll need to provision new accounts through Account Factory until your landing zone drift has been resolved.

When you enroll accounts from the AWS Control Tower console, you must be signed into an account with a user that has the AWSServiceCatalogEndUserFullAccess policy enabled, along with Administrator access permissions to use the AWS Control Tower console, and you cannot be signed in as the root user.
Accounts that you enroll may be updated by means of AWS Service Catalog and the AWS Control Tower account factory, as you would update any other account. Update procedures are given in the section called "Update and move account factory accounts with AWS Control Tower or with AWS Service Catalog."

**Steps to enroll an account**

After the **AdministratorAccess** permission (policy) is in place in your existing account, follow these steps to enroll the account:

**To enroll an individual account in AWS Control Tower**

- Navigate to the AWS Control Tower **Organization** page.
- On the **Organization** page, accounts that are eligible to be enrolled allow you to select **Enroll** from the **Actions** dropdown menu at the top of the section. These accounts also show an **Enroll account** button when you view them on the **Account details** page.
- When you choose **Enroll account**, you'll see an **Enroll account** page, where you are prompted to add the **AWSControlTowerExecution** role to the account. For some instructions, see Manualy add the required IAM role to an existing AWS account and enroll it.
- Next, select a registered OU from the drop down list. If the account is already in a registered OU, this list will show the OU.
- Choose **Enroll account**.
- You’ll see a modal reminder to add the **AWSControlTowerExecution** role and confirm the action.
- Choose **Enroll**.
- AWS Control Tower begins the process of enrollment, and you are directed back to the **Account details** page.

**Common causes for failure of enrollment**

- To enroll an existing account, the **AWSControlTowerExecution** role must be present in the account you're enrolling.
- Your IAM principal may lack the necessary permissions to provision an account.
- AWS Security Token Service (AWS STS) is disabled in your AWS account in your home Region, or in any Region supported by AWS Control Tower.
• You may be signed in to an account that needs to be added to the Account Factory Portfolio in AWS Service Catalog. The account must be added before you'll have access to Account Factory so you can create or enroll an account in AWS Control Tower. If the appropriate user or role is not added to the Account Factory portfolio, you'll receive an error when you attempt to add an account. For instructions on how to grant access to AWS Service Catalog portfolios, see Granting access to users.

• You may be signed in as root.

• The account you're trying to enroll may have AWS Config settings that are residual. In particular, the account may have a configuration recorder or delivery channel. These must be deleted or modified through the AWS CLI before you can enroll an account. For more information, see Enroll accounts that have existing AWS Config resources and Interacting with AWS Control Tower using AWS CloudShell.

• If the account belongs to another OU with a management account, including another AWS Control Tower OU, you must terminate the account in its current OU before it can join another OU. Existing resources must be removed in the original OU. Otherwise, enrollment will fail.

• Account provisioning and enrollment fails if your destination OU’s SCPs don’t allow you to create all of the resources required for that account. For example, an SCP in your destination OU may block resource creation without certain tags. In this case, account provisioning or enrollment fails, because AWS Control Tower does not support tagging of resources. For help, contact your account representative, or AWS Support.

For more information about how AWS Control Tower works with roles when you're creating new accounts or enrolling existing accounts, see How AWS Control Tower works with roles to create and manage accounts.

Tip

If you cannot confirm that an existing AWS account meets the enrollment prerequisites, you can set up an Enrollment OU and enroll the account into that OU. After enrollment is successful, you can move the account to the desired OU. If enrollment happens to fail, no other accounts or OUs are affected by the failure.

If you have doubts that your existing accounts and their configurations are compatible with AWS Control Tower, you can follow the best practice recommended in the following section.
Recommended: You can set up a two-step approach to account enrollment

- First, use an AWS Config *conformance pack* to evaluate how your accounts may be affected by some AWS Control Tower controls. To determine how enrollment into AWS Control Tower may affect your accounts, see *Extend AWS Control Tower governance using AWS Config conformance packs*.

- Next, you may wish to enroll the account. If the compliance results are satisfactory, the migration path is easier because you can enroll the account without unexpected consequences.

- After you've done your evaluation, if you decide to set up an AWS Control Tower landing zone, you may need to remove the AWS Config delivery channel and configuration recorder that were created for your evaluation. Then you'll be able to set up AWS Control Tower successfully.

**Note**

The conformance pack also works in situations where the accounts are located in OUs registered by AWS Control Tower, but the workloads run within AWS Regions that don't have AWS Control Tower support. You can use the conformance pack to manage resources in accounts that exist in Regions where AWS Control Tower is not deployed.

What if the account does not meet the prerequisites?

Remember that, as a prerequisite, accounts eligible to be enrolled into AWS Control Tower governance must be part of the same overall organization. To fulfill this prerequisite for account enrollment, you can follow these preparatory steps to move an account into the same organization as AWS Control Tower.

**Preparatory steps to bring an account into the same organization as AWS Control Tower**

1. Drop the account from its existing organization. You must provide a separate payment method if you use this approach.

2. Invite the account to join the AWS Control Tower organization. For more information, see *Inviting an AWS account to join your organization* in the *AWS Organizations User Guide*.

3. Accept the invitation. The account shows up in the root of the organization. This step moves the account into the same organization as AWS Control Tower. and establishes SCPs and consolidated billing.
Tip

You can send the invitation for the new organization before the account drops out of the old organization. The invitation will be waiting when the account officially drops out of its existing organization.

Steps to fulfill the remaining prerequisites:

1. Create the necessary AWSControlTowerExecution role.
2. Clear out the default VPC. (This part is optional. AWS Control Tower doesn't change your existing default VPC.)
3. Delete or modify any existing AWS Config configuration recorder or delivery channel through the AWS CLI or AWS CloudShell. For more information, see Example AWS Config CLI commands for resource status and Enroll accounts that have existing AWS Config resources

After you've completed these preparatory steps, you can enroll the account into AWS Control Tower. For more information, see Steps to enroll an account. This step brings the account into full AWS Control Tower governance.

Optional steps to deprovision an account, so it can be enrolled and keep its stack

1. To keep the applied AWS CloudFormation stack, delete the stack instance from the stack sets, and choose Retain stacks for the instance.
2. Terminate the account provisioned product in AWS Service Catalog Account Factory. (This step only removes the provisioned product from AWS Control Tower. It doesn't delete the account.)
3. Set up the account with the necessary billing details, as required for any account that doesn't belong to an organization. Then remove the account from the organization. (You do this, so the account doesn't count against the total in your AWS Organizations quota.)
4. Clean up the account if resources remain, and then close it, following the account closure steps in Unmanage an account.
5. If you have a Suspended OU with defined controls, you can move the account there instead of doing Step 1.
Example AWS Config CLI commands for resource status

Here are some example AWS Config CLI commands you can use to determine the status of your configuration recorder and delivery channel.

View commands:

- `aws configservice describe-delivery-channels`
- `aws configservice describe-delivery-channel-status`
- `aws configservice describe-configuration-recorders`

The normal response is something like "name": "default"

Delete commands:

- `aws configservice stop-configuration-recorder --configuration-recorder-name NAME-FROM-DESCRIBE-OUTPUT`
- `aws configservice delete-delivery-channel --delivery-channel-name NAME-FROM-DESCRIBE-OUTPUT`
- `aws configservice delete-configuration-recorder --configuration-recorder-name NAME-FROM-DESCRIBE-OUTPUT`

Manually add the required IAM role to an existing AWS account and enroll it

If you’ve already set up your AWS Control Tower landing zone, you can begin enrolling your organization’s accounts into an OU that is registered with AWS Control Tower. If you haven’t set up your landing zone, follow the steps as described in the *AWS Control Tower User Guide* at Getting Started, Step 2. After the landing zone is ready, complete the following steps to bring existing accounts into governance by AWS Control Tower, manually.

Be sure to review the Prerequisites for enrollment noted previously in this chapter.

Before enrolling an account with AWS Control Tower, you must give AWS Control Tower permission to manage that account. To do so, you’ll add a role that has full access to the account, as shown in the steps that follow. These steps must be performed for each account that you enroll.
For each account:

Step 1: Sign in with administrator access to the management account of the organization that currently contains the account you wish to enroll.

For example, if you created this account from AWS Organizations and you use a cross-account IAM role to sign in, then you may follow these steps:

1. Sign in to your organization’s management account.
2. Go to AWS Organizations.
3. Under Accounts, select the account you want to enroll and copy its account ID.
4. Open the account dropdown menu on the top navigation bar and choose Switch Role.
5. On the Switch role form, fill in the following fields:
   - Under Account, enter the account ID you copied.
   - Under Role, enter the name of the IAM role that enables cross-account access to this account. The name of this role was defined when the account was created. If you did not specify a role name when you created the account, enter the default role name, OrganizationAccountAccessRole.
6. Choose Switch Role.
7. You should now be signed into the AWS Management Console as the child account.
8. When you’re finished, stay in the child account for the next part of the procedure.
9. Make note of the management account ID, because you will need to enter it in the next step.

Step 2: Give AWS Control Tower permission to manage the account.

1. Go to IAM.
2. Go to Roles.
3. Choose Create role.
4. When asked to select which service the role is for, select EC2 and choose Next:Permissions. You will change this to AWS Control Tower later.
5. When asked to attach policies, choose AdministratorAccess.
6. Choose Next:Tags.
7. You may see an optional screen titled Add tags. Skip this screen for now by choosing Next:Review
8. On the Review screen, in the Role name field, enter AWSControlTowerExecution.

9. Enter a brief description in the Description box, such as Allows full account access for enrollment.

10. Choose Create role.

11. Navigate to the role you just created. Choose Roles on the left. Select AWSControlTowerExecution.


13. Copy the code example shown here and paste it into the Policy Document. Replace the string Management Account ID with the actual management account ID of your management account. Here is the policy to paste:

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Effect": "Allow",
         "Principal": {
            "AWS": "arn:aws:iam::Management Account ID:root"
         },
         "Action": "sts:AssumeRole",
         "Condition": {}
      }
   ]
}
```

**Step 3: Enroll the account by moving it into a registered OU, and verify enrollment.**

After you’ve set up the necessary permissions by creating the role, follow these steps to enroll the account and verify enrollment.

1. Sign in again as Admin and go to AWS Control Tower.

2. Enroll the account.

   - From the Organization page in AWS Control Tower, select your account, then choose Enroll from the Actions dropdown menu at the upper right.
   - Follow the steps for enrolling an individual account, as shown on the Steps to enroll an account page.
3. **Verify enrollment.**

- From AWS Control Tower, choose **Organization** in the left navigation.
- Look for the account you have recently enrolled. Its initial state will show a status of **Enrolling**.
- When the state changes to **Enrolled**, the move was successful.

To continue this process, sign into each account in your organization that you want to enroll in AWS Control Tower. Repeat the prerequisite steps and the enrollment steps for each account.

**Automated enrollment of AWS Organizations accounts**

You can use the enrollment method described in a blog post called [Enroll existing AWS accounts into AWS Control Tower](#) to enroll your AWS Organizations accounts into AWS Control Tower with a programmatic process.

The following YAML template may assist you in creating the required role in an account, so that it can be enrolled programatically.

```
AWSTemplateFormatVersion: 2010-09-09
Description: Configure the AWSControlTowerExecution role to enable use of your account as a target account in AWS CloudFormation StackSets.

Parameters:
  AdministratorAccountId:
    Type: String
    Description: AWS Account Id of the administrator account (the account in which StackSets will be created).
    MaxLength: 12
    MinLength: 12

Resources:
  ExecutionRole:
    Type: AWS::IAM::Role
    Properties:
      RoleName: AWSControlTowerExecution
      AssumeRolePolicyDocument:
        Version: 2012-10-17
        Statement:
          - Effect: Allow
            Principal:
              AWS:
                - !Ref AdministratorAccountId
```
Enroll accounts that have existing AWS Config resources

This topic provides a step-by-step approach for how to enroll accounts that have existing AWS Config resources. For examples of how to check your existing resources, see Example AWS Config CLI commands for resource status.

⚠️ Note

If you plan to bring existing AWS accounts into AWS Control Tower as Audit and Log archive accounts, and if those accounts have existing AWS Config resources, you must delete the existing AWS Config resources completely, before you can enroll these accounts into AWS Control Tower for this purpose. For accounts that are not intended to become Audit and Log archive accounts, you can modify the existing Config resources.

Examples of AWS Config resources

Here are some types of AWS Config resources that your account could have already. These resources may need to be modified so that you can enroll your account into AWS Control Tower.

- AWS Config recorder
- AWS Config delivery channel
- AWS Config aggregation authorization

Assumptions

- You have deployed an AWS Control Tower landing zone
- Your account is not enrolled with AWS Control Tower already.
- Your account has at least one pre-existing AWS Config resource in at least one of the AWS Control Tower Regions governed by the management account.
- Your account is not the AWS Control Tower management account.
• Your account is not in governance drift.

For a blog that describes an automated approach to enrolling accounts with existing AWS Config resources, see Automate enrollment of accounts with existing AWS Config resources into AWS Control Tower. You’ll be able to submit a single support ticket for all of the accounts you wish to enroll, as described in Step 1: Contact customer support with a ticket, to add the account to the AWS Control Tower allow list, which follows.

Limitations

• The account can be enrolled only by using the AWS Control Tower workflow for extending governance.

• If the resources are modified and create drift on the account, AWS Control Tower does not update the resources.

• AWS Config resources in Regions that are not governed by AWS Control Tower are not changed.

Note

If you attempt to enroll an account that has existing Config resources, without having the account added to the allow list, enrollment will fail. Thereafter, if you subsequently try to add that same account to the allow list, AWS Control Tower cannot validate that the account is provisioned correctly. You must deprovision the account from AWS Control Tower before you can request the allow list and then enroll it. If you only move the account to a different AWS Control Tower OU, it causes governance drift, which also prevents the account from being added to the allow list.

This process has 5 main steps.

1. Add the account to the AWS Control Tower allow list.

2. Create a new IAM role in the account.

3. Modify pre-existing AWS Config resources.

4. Create AWS Config resources in AWS Regions where they don’t exist.

5. Enroll the account with AWS Control Tower.
Before you proceed, consider the following expectations regarding this process.

- AWS Control Tower does not create any AWS Config resources in this account.
- After enrollment, AWS Control Tower controls automatically protect the AWS Config resources you created, including the new IAM role.
- If any changes are made to the AWS Config resources after enrollment, those resources must be updated to align with AWS Control Tower settings before you can re-enroll the account.

**Step 1: Contact customer support with a ticket, to add the account to the AWS Control Tower allow list**

Include this phrase in your ticket subject line:

*Enroll accounts that have existing AWS Config resources into AWS Control Tower*

Include the following details in the body of your ticket:

- Management account number
- Account numbers of member accounts that have existing AWS Config resources
- Your selected home Region for AWS Control Tower setup

**Note**

The required time for adding your account to the allow list is 2 business days.

**Step 2: Create a new IAM role in the member account**

1. Open the AWS CloudFormation console for the member account.
2. Create a new stack using the following template

```
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config

Resources:
    CustomerCreatedConfigRecorderRole:
```
3. Provide the name for the stack as **CustomerCreatedConfigRecorderRoleForControlTower**

4. Create the stack.

### Note

Any SCPs that you create should exclude an `aws-controltower-ConfigRecorderRole*` role. Do not modify the permissions that restrict the ability for AWS Config rules to perform evaluations.

Follow these guidelines so that you don't receive an `AccessDeniedException` when you have SCPs that block `aws-controltower-ConfigRecorderRole*` from calling Config.

---

**Step 3: Identify the AWS Regions with pre-existing resources**

For each governed Region (AWS Control Tower governed) in the account, identify and note the Regions that have at least one of the existing AWS Config resource example types shown previously.

**Step 4: Identify the AWS Regions without any AWS Config resources**

For each governed Region (AWS Control Tower governed) in the account, identify and note the Regions in which there are no AWS Config resources of the example types shown previously.
Step 5: Modify the existing resources in each AWS Region

For this step, the following information is needed about your AWS Control Tower setup.

- LOGGING_ACCOUNT - the Logging account ID
- AUDIT_ACCOUNT - the Audit account ID
- IAM_ROLE_ARN - the IAM role ARN created in Step 1
- ORGANIZATION_ID - the organization ID for the management account
- MEMBER_ACCOUNT_NUMBER - the member account that is being modified
- HOME_REGION - the home Region for AWS Control Tower setup.

Modify each existing resource by following the instructions given in sections 5a through 5c, which follow.

Step 5a. AWS Config recorder resources

Only one AWS Config recorder can exist per AWS Region. If one exists, modify the settings as shown. Replace the item GLOBAL_RESOURCE_RECORDING with true in your home Region. Replace the item with false for other Regions where an AWS Config recorder exists.

- **Name:** DON'T CHANGE
- **RoleARN:** IAM_ROLE_ARN
  - **RecordingGroup:**
    - **AllSupported:** true
    - **IncludeGlobalResourceTypes:** GLOBAL_RESOURCE_RECORDING
    - **ResourceTypes:** Empty

This modification can be made through the AWS CLI using the following command. Replace the string RECORDER_NAME with the existing AWS Config recorder name.

```bash
aws configservice put-configuration-recorder --configuration-recorder
  name=RECORDER_NAME,roleARN=arn:aws:iam::MEMBER_ACCOUNT_NUMBER:role/aws-controlltower-ConfigRecorderRole-customer-created --recording-group
  allSupported=true,includeGlobalResourceTypes=GLOBAL_RESOURCE_RECORDING
  --region CURRENT_REGION
```
Step 5b. Modify AWS Config delivery channel resources

Only one AWS Config delivery channel can exist per Region. If another exists, modify the settings as shown.

- **Name:** DON’T CHANGE
- **ConfigSnapshotDeliveryProperties:** TwentyFour_Hours
- **S3BucketName:** The logging bucket name from the AWS Control Tower logging account
  
  `aws-controltower-logs-LOGGING_ACCOUNT-HOME_REGION`
- **S3KeyPrefix:** `ORGANIZATION_ID`
- **SnsTopicARN:** The SNS topic ARN from the audit account, with the following format:
  

This modification can be made through the AWS CLI using the following command. Replace the string `DELIVERY_CHANNEL_NAME` with the existing AWS Config recorder name.

```
aws configservice put-delivery-channel --delivery-channel
  name=DELIVERY_CHANNEL_NAME,s3BucketName=aws-controltower-logs-LOGGING_ACCOUNT-HOME_REGION,s3KeyPrefix="ORGANIZATION_ID",configSnapshotDeliveryProperties={deliveryFrequency=TwentyFour_Hours},snsTopicARN=arn:aws:sns:CURRENT_REGION:AUDIT_ACCOUNT:aws-controltower-AllConfigNotifications --region CURRENT_REGION
```

Step 5c. Modify AWS Config aggregation authorization resources

Multiple aggregation authorizations can exist per Region. AWS Control Tower requires an aggregation authorization that specifies the audit account as the authorized account, and has the home Region for AWS Control Tower as the authorized Region. If it doesn’t exist, create a new one with the following settings:

- **AuthorizedAccountId:** The Audit account ID
• **AuthorizedAwsRegion**: The home Region for the AWS Control Tower setup

This modification can be made through the AWS CLI using the following command:

```
aws configservice put-aggregation-authorization --authorized-account-id AUDIT_ACCOUNT_ID --authorized-aws-region HOME_REGION --region CURRENT_REGION
```

**Step 6: Create resources where they don’t exist, in Regions governed by AWS Control Tower**

Revise the AWS CloudFormation template, so that in your home Region the `IncludeGlobalResourceTypes` parameter has the value `GLOBAL_RESOURCE_RECORDING`, as shown in the example that follows. Also update the required fields in the template, as specified in this section.

Replace the item `GLOBAL_RESOURCE_RECORDING` with `true` in your home Region. Replace the item with `false` for other Regions where an AWS Config recorder exists.

1. Navigate to the management account’s AWS CloudFormation console.
2. Create a new StackSet with the name `CustomerCreatedConfigResourcesForControlTower`.
3. Copy and update the following template:

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config
Resources:
  CustomerCreatedConfigRecorder:
    Type: AWS::Config::ConfigurationRecorder
    Properties:
      Name: aws-controlltower-BaselineConfigRecorder-customer-created
      RoleARN: !Sub arn:aws:iam::${AWS::AccountId}:role/aws-controlltower-ConfigRecorderRole-customer-created
      RecordingGroup:
        AllSupported: true
        IncludeGlobalResourceTypes: GLOBAL_RESOURCE_RECORDING
      ResourceTypes: []
  CustomerCreatedConfigDeliveryChannel:
    Type: AWS::Config::DeliveryChannel
    Properties:
      Name: aws-controlltower-BaselineConfigDeliveryChannel-customer-created
```

---

**Step 6: Create resources where they don’t exist, in Regions governed by AWS Control Tower**

203
AWS Control Tower

ConfigSnapshotDeliveryProperties:
  DeliveryFrequency: TwentyFour_Hours
  S3BucketName: aws-controltower-logs-LOGGING_ACCOUNT-S3KeyPrefix: ORGANIZATION_ID
  S3KeyPrefix: ORGANIZATION_ID
  SnsTopicARN: !Sub arn:aws:sns:${AWS::Region}:AUDIT_ACCOUNT:aws-controltower-
  SnsTopicARN: !Sub arn:aws:sns:${AWS::Region}:AUDIT_ACCOUNT:aws-controltower-
  CustomerCreatedAggregationAuthorization:
    Type: "AWS::Config::AggregationAuthorization"
    Properties:
      AuthorizedAccountId: AUDIT_ACCOUNT
      AuthorizedAwsRegion: HOME_REGION

Update the template with required fields:

a. In the S3BucketName field, replace the LOGGING_ACCOUNT_ID and HOME_REGION
b. In the S3KeyPrefix field, replace the ORGANIZATION_ID
c. In the SnsTopicARN field, replace the AUDIT_ACCOUNT
d. In the AuthorizedAccountId field, replace the AUDIT_ACCOUNT
e. In the AuthorizedAwsRegion field, replace the HOME_REGION

4. During deployment on the AWS CloudFormation console, add the member account number.
5. Add the AWS Regions that were identified in Step 4.
6. Deploy the stack set.

Step 7: Register the OU with AWS Control Tower

In the AWS Control Tower dashboard, register the OU.

Note

The Enroll account workflow will not succeed for this task. You must choose Register OU or Re-register OU.

Provision and manage accounts with Account Factory

This chapter includes an overview and procedures for provisioning new member accounts in an AWS Control Tower landing zone with Account Factory.
Permissions for configuring and provisioning accounts

The AWS Control Tower Account Factory enables cloud administrators and users in AWS IAM Identity Center to provision accounts in your landing zone. By default, IAM Identity Center users that provision accounts must be in the AWSAccountFactory group or the management group.

Note
Exercise caution when working from the management account, as you would when using any account that has permissions across your organization.

The AWS Control Tower management account has a trust relationship with the AWSControlTowerExecution role, which allows account setup from the management account, including some automated account setup. For more information about the AWSControlTowerExecution role, see How AWS Control Tower works with roles to create and manage accounts.

Note
To enroll an existing AWS account into AWS Control Tower, that account must have the AWSControlTowerExecution role enabled. For more information about how to enroll an existing account, see Enroll an existing AWS account.

For more information about permissions, see Permissions required for accounts.

Provision accounts with AWS Service Catalog Account Factory

The following procedure describes how to create and provision accounts as a user in IAM Identity Center through AWS Service Catalog. This procedure also is referred to as advanced account provisioning, or manual account provisioning. Optionally, you may be able to provision accounts programmatically, with the AWS CLI or with AWS Control Tower Account Factory for Terraform (AFT). You may be able to provision customized accounts in the console if you've previously set up custom blueprints. For more information about customization, see Customize accounts with Account Factory Customization (AFC).
To provision accounts individually in Account Factory, as a user

1. Sign in from your user portal URL.
2. From Your applications, choose AWS Account.
3. From the list of accounts, choose the account ID for your management account. This ID may also have a label, for example, (Management).
4. From AWSServiceCatalogEndUserAccess, choose Management console. This opens the AWS Management Console for this user in this account.
5. Ensure that you've selected the correct AWS Region for provisioning accounts, which should be your AWS Control Tower Region.
6. Search for and choose Service Catalog to open the Service Catalog console.
7. In the navigation pane, choose Products.
8. Select AWS Control Tower Account Factory, then choose the Launch product button. This selection starts the wizard to provision a new account.
9. Fill in the information, and keep the following in mind:
   • The SSOUserEmail can be a new email address, or the email address associated with an existing IAM Identity Center user. Whichever you choose, this user will have administrative access to the account you're provisioning.
   • The AccountEmail must be an email address that isn't already associated with an AWS account. If you used a new email address in SSOUserEmail, you can use that email address here.
10. Don't define TagOptions and don't enable Notifications, otherwise the account can fail to be provisioned. When you're finished, choose Launch product.
11. Review your account settings, and then choose Launch. Don't create a resource plan, otherwise the account will fail to be provisioned.
12. Your account is now being provisioned. It can take a few minutes to complete. You can refresh the page to update the displayed status information.

⚠️ Note
Up to five accounts can be provisioned at a time.
Considerations for managing accounts in Account Factory

You can update, unmanage, and close accounts that you create and provision through Account Factory. You can recycle accounts by updating the user parameters in the accounts that you want to repurpose. You can also change an account's organizational unit (OU).

**Note**

When updating a provisioned product that's associated with an account that Account Factory vends, if you specify a new user email address for AWS IAM Identity Center, AWS Control Tower creates a new user in IAM Identity Center. The previously created account isn't removed. For information about removing the previous IAM Identity Center user email address from IAM Identity Center, see [Disabling a User](#).

Update and move account factory accounts with AWS Control Tower or with AWS Service Catalog

The easiest way to update an enrolled account is through the AWS Control Tower console. Individual account updates are useful for resolving drift, such as [Moved Member Account](#). Account updates also are required as part of a full landing zone update.

If you move an account from one organizational unit (OU) to another, remember that the controls applied by the new OU may be different than the controls in the former OU. Be sure that the controls in the new OU meet your policy requirements for the account.

Control behavior when accounts are moved between OUs

When you move an account between OUs, the controls for the destination OU are applied to the account. However, the controls that applied to the account from the former OU are not removed. The exact behavior of the controls is specific to the implementation of the controls that are active on the former OU and the destination OU.

- *For controls implemented with AWS Config rules:* The controls from the previous OU are not removed. These controls must be removed manually.
- *For controls implemented with SCPs:* The controls from the previous OU are not removed. These controls must be removed manually.
For controls implemented with AWS CloudFormation hooks: This behavior depends on the status of controls in the new OU.

- If the destination OU has no hook-based controls active: The old controls remain active for the moved account, unless you remove them manually.
- If the destination OU has hook controls active: The old controls are removed and the controls in the destination OU are applied to the account.

Update the account in the console

To update an account in the AWS Control Tower console

1. When signed in to AWS Control Tower, navigate to the Organization page.
2. In the list of OUs and accounts, select the name of the account you wish to update. Accounts that are available for updating show a status of Update available.
3. Next you'll see the Account details page for your selected account.
4. In the upper right, choose Update account.

Update the provisioned product

The following procedure guides you through how to update your account in Account Factory or move it to a new OU, by updating the account's provisioned product in Service Catalog.

To update an Account Factory account or change its OU through Service Catalog

1. Sign in to the AWS Management Console, and open the AWS Service Catalog console at https://console.aws.amazon.com/servicecatalog/.
2. In the navigation pane, choose Provisioning, and then choose Provisioned products.

Note

You must sign in as a user with permissions to provision new products in Service Catalog (for example, an IAM Identity Center user in AWSAccountFactory or AWSServiceCatalogAdmins groups).
3. For each of the member accounts listed, perform the following steps to update all member accounts:

   a. Select a member account. You’re directed to the Provisioned product details page for that account.

   b. On the Provisioned product details page, choose the Events tab.

   c. Make a note of the following parameters:

      - **SSOUUserEmail** (Available in provisioned product details)
      - **AccountEmail** (Available in provisioned product details)
      - **SSOUserFirstName** (Available in IAM Identity Center)
      - **SSOUSerLastName** (Available in IAM Identity Center)
      - **AccountName** (Available in IAM Identity Center)

   d. From Actions, choose Update.

   e. Choose the button next to the Version of the product you want to update, and choose Next.

   f. Provide the parameter values that were mentioned previously.

      - If you want to keep the existing OU, for ManagedOrganizationalUnit, choose the OU that the account was already in.
      - If you want to migrate the account to a new OU, for ManagedOrganizationalUnit, choose the new OU for the account.

   A central cloud administrator can find this information in the AWS Control Tower console, on the Organization page.

   g. Choose Next.

   h. Review your changes, and then choose Update. This process can take a few minutes per account.

**Change email address of an enrolled account**

To change the email address of an enrolled member account in AWS Control Tower, follow the procedure in this section.
Note

The following procedure doesn’t allow you to change the email address of a management account, log archive account, or audit account. For more information about that, see How do I change the email address associated with my AWS account? or contact AWS Support.

To change the email address of an account that AWS Control Tower creates

1. Recover the root user password for the account. You can follow the steps in the article How do I recover a lost or forgotten AWS password?
2. Sign in to the account with the root user password.
3. Change the email address as you would for any other AWS account, and wait for the change to reflect in AWS Organizations. You might experience a delay while the email address change finishes updating.
4. Update the provisioned product in Service Catalog using the email address that previously belonged to the account. The process for updating the provisioned product includes associating the new email address with the provisioned product. This way the email address change takes effect in AWS Control Tower. Use the new email address for updates to subsequently provisioned products.

To change the password or email address of a member account that you created with AWS Organizations, see Accessing a member account as the root user in the AWS Organizations User Guide.

Change the name of an enrolled account

Follow the procedure given in this section to change the name of an enrolled AWS Control Tower account.

To change the name of an account created by AWS Control Tower

1. Recover the root password for the account. You can follow the steps outlined in this article, How do I recover a lost or forgotten AWS password?
2. Sign in to the account with the root password.
4. Change the name in Account settings, as you would for any other AWS account.
5. AWS Control Tower automatically updates itself to reflect the name change. This update will not be reflected in the provisioned product in Service Catalog.

**Configure Account Factory with Amazon Virtual Private Cloud settings**

Account Factory allows you to create pre-approved baselines and configuration options for accounts in your organization. You can configure and provision new accounts through AWS Service Catalog.

On the Account Factory page, you can see a list of organizational units (OUs) and their allow list status. By default, all OUs are on the allow list, which means that accounts can be provisioned under them. You can disable certain OUs for account provisioning through AWS Service Catalog.

You can view the Amazon VPC configuration options available to your end users when they provision new accounts.

**To configure Amazon VPC settings in Account Factory**

1. As a central cloud administrator, sign into the AWS Control Tower console with administrator permissions in the management account.
2. From the left side of the dashboard, select **Account Factory** to navigate to the Account Factory network configuration page. There you can see the default network settings displayed. To edit, select **Edit** and view the editable version of your Account Factory network configuration settings.
3. You can modify each field of the default settings as needed. Choose the VPC configuration options you'd like to establish for all new Account Factory accounts that your end users may create, and enter your settings into the fields.

- Choose **disabled** or **enabled** to create a public subnet in Amazon VPC. By default, the internet-accessible subnet is disallowed.

**Note**

If you set the account factory VPC configuration so that public subnets are **enabled** when provisioning a new account, account factory configures Amazon VPC to create a **NAT Gateway**. You will be billed for your usage by Amazon VPC. See **VPC Pricing** for more information.
• Choose the maximum number of private subnets in Amazon VPC from the list. By default, 1 is selected. The maximum number of private subnets allowed is 2 per availability zone.

• Enter the range of IP addresses for creating your account VPCs. The value must be in the form of a classless inter-domain routing (CIDR) block (for example, the default is 172.31.0.0/16). This CIDR block provides the overall range of subnet IP addresses for the VPC that Account Factory creates for your account. Within your VPC, subnets are assigned automatically from the range you specify, and they are equal in size. By default, subnets within your VPC do not overlap. However, subnet IP address ranges in the VPCs of all your provisioned accounts could overlap.

• Choose a region or all the regions for creating a VPC when an account is provisioned. By default all available regions are selected.

• From the list, choose the number of Availability Zones to configure subnets for in each VPC. The default and recommended number is 3.

• Choose **Save**.

You can set up these configuration options to create new accounts that don't include a VPC. See the [walkthrough](#).

## Unmanage an account

If you created an account in Account Factory or enrolled an AWS account, and you no longer want the account to be managed by AWS Control Tower in a landing zone, you can unmanage the account from the AWS Control Tower console.

When you unmanage an AWS Control Tower account, all resources provisioned by AWS Control Tower are removed, including any blueprints. The account is moved out of any AWS Control Tower OU and into the **Root** area. The account is no longer part of a registered OU, and it is no longer subject to AWS Control Tower SCPs. You can close the account through AWS Organizations.

Unmanaging an account also can be done in the Service Catalog console by an IAM Identity Center user in the AWSAccountFactory group, by terminating the Provisioned Product. For more information on IAM Identity Center users or groups, see [Manage users and access through AWS IAM Identity Center](#). The following procedure describes how to unmanage a member account in Service Catalog.

### To unmanage an enrolled account

2. In the left navigation pane, choose **Provisioned products list**.

3. From the list of provisioned accounts, choose the name of the account that you want AWS Control Tower no longer to manage.

4. On the **Provisioned product details** page, from the **Actions** menu, choose **Terminate**.

5. From the dialog box that appears, choose **Terminate**.

**Important**

The word *terminate* is specific to Service Catalog. When you terminate an account in Service Catalog Account Factory, the account is not closed. This action removes the account from its OU and your landing zone.

6. When the account has been unmanaged, its status changes to **Not Enrolled**.

7. If you no longer need the account, close it. For more information about closing AWS accounts, see **Closing an account** in the **AWS Billing User Guide**

When you unmanage a customized account, AWS Control Tower removes the resources that the blueprint has deployed, as well as any other resources that AWS Control Tower created within the account. After you unmanage the account, you can close the account through AWS Organizations.

**Note**

An unmanaged account is not closed or deleted. When the account has been unmanaged, the IAM Identity Center user that you selected when you created the account in Account Factory still has administrative access to the account. If you do not want this user to have administrative access, you must change this setting in IAM Identity Center by updating the account in Account Factory and changing the IAM Identity Center user email address for the account. For more information, see **Update and move account factory accounts with AWS Control Tower or with AWS Service Catalog**.

**Video Walkthrough**

This video (3:25) describes how to remove an account from AWS Control Tower, gain root access to the account, and finally close the AWS account. You also can close an account with an **AWS Organizations API**. For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.
Video Walkthrough of Closing an Account in AWS Control Tower.

You can view a list of AWS YouTube videos that explain common tasks in AWS Control Tower.

Close an account created in Account Factory

Accounts created in Account Factory are AWS accounts. For information about closing AWS accounts, see Closing an account in the AWS Billing User Guide.

Note

Closing an AWS account is not the same as unmanaging an account from AWS Control Tower—these are separate actions. You must unmanage the account before you close it.

Close an AWS Control Tower member account through AWS Organizations

You can close your AWS Control Tower member accounts from your organization’s management account without a requirement to sign in to each member account individually with root credentials, by means of AWS Organizations. You cannot close your management account in this way, however.

When you call the AWS Organizations CloseAccount API, or close an account in the AWS Organizations console, the member account is isolated for 90 days, as any AWS account would be. The account shows a Suspended status in AWS Control Tower and AWS Organizations. If you attempt to work with the account during that 90 days, AWS Control Tower gives an error message.

Before the 90 days expire, you can restore the member account, as you can do with any AWS account. After that 90-day time, the account’s records are removed.

We recommend, as a best practice, to unmanage a member account before you close that account. If you close a member account without first unmanaging it, AWS Control Tower shows the account’s status as Suspended, but also as Enrolled. As a result, if you attempt to Re-register the account’s OU during that 90-day time, AWS Control Tower produces an error message. The suspended account essentially blocks the re-registering actions with a pre-check failure. If you remove the account from the OU, you can Re-register the OU, but AWS may produce an error regarding a missing method of payment for the account. To work around this constraint, create another OU, and move the account to that OU before you try to re-register. We recommend naming this OU the Suspended OU.
If you do not unmanage the account before you close it, you must delete the account’s provisioned product in AWS Service Catalog after those 90 days are finished.

For more information, see the AWS Organizations documentation about the CloseAccount API.

**Resource Considerations for Account Factory**

When an account is provisioned with Account Factory, the following AWS resources are created within the account.

<table>
<thead>
<tr>
<th>AWS service</th>
<th>Resource type</th>
<th>Resource name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS CloudFormation</td>
<td>Stacks</td>
<td>StackSet-AWSControlTowerBP-BASELINE-CLoudTRAIL-*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControlTowerBP-BASELINE-CLoudWATCH-*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControlTowerBP-BASELINE-CONFIG-*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControlTowerBP-BASELINE-ROLEs-*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>StackSet-AWSControlTowerBP-BASELINE-SERVICE-ROLEs-*</td>
</tr>
<tr>
<td>AWS CloudTrail</td>
<td>Trail</td>
<td>aws-controltower-BaselineCloudTrail</td>
</tr>
<tr>
<td>AWS service</td>
<td>Resource type</td>
<td>Resource name</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>---------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Amazon CloudWatch</td>
<td>CloudWatch Event Rules</td>
<td>aws-controltower-ConfigComplianceChangeEventRule</td>
</tr>
<tr>
<td>Amazon CloudWatch</td>
<td>CloudWatch Logs</td>
<td>aws-controltower/CloudTrail Logs /aws/lambda/aws-controltower-NotificationForwarder</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td>Roles</td>
<td>aws-controltower-AdministratorExecutionRole</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td>Policies</td>
<td>AWSControlTowerServiceRolePolicy</td>
</tr>
<tr>
<td>Amazon Simple Notification Service</td>
<td>Topics</td>
<td>aws-controltower-SecurityNotifications</td>
</tr>
<tr>
<td>AWS Lambda</td>
<td>Applications</td>
<td>StackSet-AWSControlTowerBP-BASELINE-CLOUDWATCH-*</td>
</tr>
</tbody>
</table>
### Customize accounts with Account Factory Customization (AFC)

AWS Control Tower allows you to customize new and existing AWS accounts when you provision their resources from the AWS Control Tower console. After you set up account factory customization, AWS Control Tower automates this process for future provisioning, so you don't have to maintain any pipelines. Customized accounts are available for use immediately after the resources are provisioned.

Your customized accounts are provisioned in account factory, through AWS CloudFormation templates, or with Terraform. You'll define a template that serves as customized account blueprint. Your blueprint describes the specific resources and configurations you require when an account is provisioned. Pre-defined blueprints, built and managed by AWS partners, also are available. For more information about partner-managed blueprints, see the [Service Catalog Getting Started Library](#).

> **Note**
> AWS Control Tower contains proactive controls, which monitor AWS CloudFormation resources in AWS Control Tower. Optionally, you can activate these controls in your landing zone. When you apply proactive controls, they check to make sure that the resources you're about to deploy to your accounts are compliant with your organization's policies and procedures. For more information about proactive controls, see [Proactive controls](#).

Your account blueprints are stored in an AWS account, which for our purposes is referred to as a *hub account*. Blueprints are stored in the form of an Service Catalog product. We call this product a blueprint, to distinguish it from any other Service Catalog products. To learn more about how to create Service Catalog products, see [Creating products](#) in the [Service Catalog Administrator Guide](#).

#### Apply blueprints to existing accounts

You can apply customized blueprints to existing accounts, also, by following the *Update account* steps in the AWS Control Tower console. For details, see [Update the account in the console](#).
Before you begin

Before you begin to create customized accounts with AWS Control Tower Account Factory, you must have an AWS Control Tower landing zone environment deployed, and you must have an organizational unit (OU) registered with AWS Control Tower, where your newly created accounts will be placed.

For more information about working with AFC, see Automate account customization using Account Factory Customization in AWS Control Tower.

Preparation for customization

- You may create a new account to serve as the hub account, or you may use an existing AWS account. We strongly recommend that you do not use the AWS Control Tower management account as your blueprint hub account.
- If you plan to enroll AWS accounts into AWS Control Tower and customize them, you must first add the AWSControlTowerExecution role to those accounts, as you would for any other account you are enrolling into AWS Control Tower.
- If you plan to use partner blueprints that have marketplace subscription requirements, you must configure these from your AWS Control Tower management account before you deploy the partner blueprints as account factory customization blueprints.

Topics

- Set up for customization
- Create a customized account from a blueprint
- Enroll and customize accounts
- Add a blueprint to an AWS Control Tower account
- Update a blueprint
- Remove a blueprint from an account
- Partner blueprints
- Considerations for Account Factory Customizations (AFC)
- In case of a blueprint error
- Customizing your policy document for AFC blueprints based on CloudFormation
Set up for customization

The next sections give steps to set up Account Factory for the customization process. We recommend that you set up delegated admin for the hub account, before you begin these steps.

Summary

- **Step 1. Create the required role.** Create an IAM role that grants permission for AWS Control Tower to have access to the (hub) account, where the Service Catalog products, also called blueprints, are stored.

- **Step 2. Create the Service Catalog product.** Create the Service Catalog product (also called a “blueprint product”) that you'll need for baselining the custom account.

- **Step 3. Review your custom blueprint.** Inspect the Service Catalog product (blueprint) that you created.

- **Step 4. Call your blueprint to create a customized account.** Enter the blueprint product information and the role information into the proper fields in Account Factory, in the AWS Control Tower console, while creating the account.

**Step 1. Create the required role**

Before you begin to customize accounts, you must set up a role that contains a trust relationship between AWS Control Tower and your hub account. When assumed, the role grants AWS Control Tower access to administer the hub account. The role must be named AWSControlTowerBlueprintAccess.

AWS Control Tower assumes this role to create a Portfolio resource on your behalf in Service Catalog, then to add your blueprint as a Service Catalog Product to this Portfolio, and then to share this Portfolio, and your blueprint, with your member account during account provisioning.

You'll create the AWSControlTowerBlueprintAccess role, as explained in the following sections.

Navigate to the IAM console to set up the required role.
To set up the role in an enrolled AWS Control Tower account

1. Federate or sign in as the principal in the AWS Control Tower management account.

2. From the federated principal in the management account, assume or switch roles to the AWSControlTowerExecution role in the enrolled AWS Control Tower account that you select to serve as the blueprint hub account.

3. From the AWSControlTowerExecution role in the enrolled AWS Control Tower account, create the AWSControlTowerBlueprintAccess role with proper permissions and trust relationships.

**Note**

To comply with AWS best practices guidance, it's important that you sign out of the AWSControlTowerExecution role immediately after you create the AWSControlTowerBlueprintAccess role.

To prevent unintended changes to resources, the AWSControlTowerExecution role is intended for use by AWS Control Tower only.

If your blueprint hub account isn't enrolled in AWS Control Tower, the AWSControlTowerExecution role won't exist in the account, and there's no need to assume it before you continue with setting up the AWSControlTowerBlueprintAccess role.

To set up the role in an unenrolled member account

1. Federate or sign in as a principal in the account that you wish to designate as the hub account, by means of your preferred method.

2. When signed in as the principal in the account, create the AWSControlTowerBlueprintAccess role with proper permissions and trust relationships.

The AWSControlTowerBlueprintAccess role must be set up to grant trust to two principals:

- The principal (user) that runs AWS Control Tower in the AWS Control Tower management account.
- The role named AWSControlTowerAdmin in the AWS Control Tower management account.
Here's an example trust policy, similar to one you will need to include for your role. This policy demonstrates the best practice of granting least-privilege access. When you make your own policy, replace the term `YourManagementAccountId` with the actual account ID of your AWS Control Tower management account, and replace the term `YourControlTowerUserRole` with the identifier of the IAM role for your management account.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": {
                "AWS": [
                    "arn:aws:iam::YourManagementAccountId:role/service-role/AWSControlTowerAdmin",
                    "arn:aws:iam::YourManagementAccountId:role/YourControlTowerUserRole"
                ]
            },
            "Action": "sts:AssumeRole"
        }
    ]
}
```

**Required permissions policy**

AWS Control Tower requires that the managed policy named `AWSServiceCatalogAdminFullAccess` must be attached to the `AWSControlTowerBlueprintAccess` role. This policy provides permissions that Service Catalog looks for when it allows AWS Control Tower to administer your portfolio and Service Catalog Product resources. You can attach this policy when you're creating the role in the IAM console.

**Additional permissions may be required**

- If you store your blueprints in Amazon S3, AWS Control Tower also requires the `AmazonS3ReadOnlyAccess` permission policy for the `AWSControlTowerBlueprintAccess` role.

- The AWS Service Catalog Terraform type of product requires you to add some additional permissions to the AFC custom IAM policy, if you don't utilize the default `Admin` policy.
It requires these in addition to the permissions required to create the resources that you define in your terraform template.

---

**Step 2. Create the AWS Service Catalog product**

To create an AWS Service Catalog product, follow the steps at Creating products in the *AWS Service Catalog Administrator Guide*. You'll add your account blueprint as a template when you create the AWS Service Catalog product.

⚠️ **Important**

As a result of HashiCorp's updated Terraform licensing, AWS Service Catalog changed support for Terraform Open Source products and provisioned products to a new product type, called *External*. To learn more about how this change effects AFC, including how to update your blueprints to the External product type, review Transition to External product type.

---

**Summary of steps to create a blueprint**

- Create or download an AWS CloudFormation template that will become your account blueprint. Some template examples are given later in this section.
- Sign in to the AWS account where you store your Account Factory blueprints (sometimes called the hub account).
- Navigate to the Service Catalog console. Choose **Product list**, and then choose **Upload new product**.
- In the **Product details** pane, enter details for your blueprint product, such as a name and description.
- Select **Use a template file** and then select **Choose file**. Select or paste the AWS CloudFormation template you've developed or downloaded for use as your blueprint.
- Choose **Create product** at the bottom of the console page.

You can download an AWS CloudFormation template from the Service Catalog reference architecture repository. One example from that repository helps set up a backup plan for your resources.
Here's an example template, for a fictitious company called **Best Pets**. It helps set up a connection to their pet database.

Resources:

- **ConnectionStringGeneratorLambdaRole**:
  - Type: AWS::IAM::Role
  - Properties:
    - AssumeRolePolicyDocument:
      - Version: "2012-10-17"
      - Statement:
        - Effect: Allow
          - Principal:
            - Service:
              - lambda.amazonaws.com
          - Action:
            - "sts:AssumeRole"

- **ConnectionStringGeneratorLambda**:
  - Type: AWS::Lambda::Function
  - Properties:
    - Description: Retrieves the connection string for this account to access the Pet Database
    - Role: !GetAtt ConnectionStringGeneratorLambdaRole.Arn
    - Runtime: nodejs16.x
    - Handler: index.handler
    - Timeout: 5
    - Code:
      - ZipFile: >
        const response = require("cfn-response");
        exports.handler = function (event, context) {
            const awsAccountId = context.invokedFunctionArn.split(':')[4]
            const connectionString = "fake connection string that's specific to account " + awsAccountId;
            const responseData = {
                Value: connectionString,
            }
            response.send(event, context, response.SUCCESS, responseData);
            return connectionString;
        }

- **ConnectionString**:
  - Type: Custom::ConnectionStringGenerator
Properties:
  ServiceToken: !GetAtt ConnectionStringGeneratorLambda.Arn

PetDatabaseConnectionString:
  DependsOn: ConnectionString
  # For example purposes we're using SSM parameter store.
  # In your template, use secure alternatives to store
  # sensitive values such as connection strings.
  Type: AWS::SSM::Parameter
  Properties:
    Name: pet-database-connection-string
    Description: Connection information for the BestPets pet database
    Type: String
    Value: !GetAtt ConnectionString.Value

### Step 3. Review your custom blueprint

You can view your blueprint in the Service Catalog console. For more information, see Managing products in the Service Catalog Administrator Guide.

### Step 4. Call your blueprint to create a customized account

When you follow the Create account workflow in the AWS Control Tower console, you'll see an optional section where you can enter information about the blueprint you'd like to use for customizing accounts.

**Note**

You must set up your customization hub account and add at least one blueprint (Service Catalog product) before you can enter that information into the AWS Control Tower console and begin to provision customized accounts.

Create or update a customized account in the AWS Control Tower console.

1. Enter the account ID for the account that contains your blueprints.
2. From that account, select an existing Service Catalog product; that is, select an existing blueprint.
3. Select the proper version of the blueprint (Service Catalog product), if you have more than one version.
4. (Optional) You can add or change a blueprint provisioning policy at this point in the process. The blueprint provisioning policy is written in JSON and attached to an IAM role, so it can provision the resources that are specified in the blueprint template. AWS Control Tower creates this role in the member account so that Service Catalog can deploy resources using AWS CloudFormation stack sets. The role is named AWSControlTower-BlueprintExecution-bp-xxxx. The AdministratorAccess policy is applied here by default.

5. Choose the AWS Region or Regions in which you wish to deploy accounts based on this blueprint.

6. If your blueprint contains parameters, you can enter the values for the parameters into additional fields in the AWS Control Tower workflow. The additional values may include: a GitHub repository name, a GitHub branch, an Amazon ECS cluster name, and a GitHub identity for the repository owner.

7. You can customize accounts at a later time by following the Account update process, if your hub account or blueprints are not yet ready.

For more details, see Create a customized account from a blueprint.

Create a customized account from a blueprint

After you have created custom blueprints, you can start creating custom accounts in AWS Control Tower account factory.

Follow these steps to deploy a custom blueprint when you're creating a new AWS account:

1. Go to AWS Control Tower in the AWS Management Console.
2. Select Account factory and Create account.
3. Enter account details such as account name and email address.
4. Configure IAM Identity Center details with email address and user name.
5. Select a registered OU where your account will be added.
6. Expand the Account factory customization section.
7. Enter the account ID of the blueprint hub account that contains your Service Catalog products and choose Validate. For more information about a blueprint hub account, see Customize accounts with Account Factory Customization (AFC).
8. Select the dropdown menu that contains all blueprints from your Service Catalog Product List (all custom and partner blueprints). Choose a blueprint and corresponding version to deploy.
9. If your blueprint contains parameters, these fields are displayed for you to populate. Default values are pre-populated.

10. Finally, select where you'll deploy your blueprint, either **Home Region** or **All governed Regions**. Global resources such as Route 53 or IAM, may need to be deployed to a single Region only. Regional resources, such as Amazon EC2 instances or Amazon S3 buckets, could be deployed to all governed Regions.

11. After all fields are completed, select **Create account**.

**Note**

Blueprints created with Terraform can deploy to one Region only, not multiple Regions.

You can view the progress of your account provisioning on the **Organization** page. When your account provisioning is complete, the resources specified by your blueprint are already deployed within it. To view the details of the account and blueprint, go to the **Account details** page.

### Enroll and customize accounts

To enroll and customize accounts in the AWS Control Tower console.

1. Navigate to the AWS Control Tower console and select **Organization** from the left navigation.

2. You will see a list of your available accounts. Identify the account you would like to enroll with a custom blueprint. The **State** column for that account should reflect the account in a **Not enrolled** status.

3. Select the radio button to the left of the account and choose the **Actions** dropdown menu, in the top right of the screen. Here you will select the **Enroll** option.

4. Complete the **Access configuration** section with the account's IAM Identity Center information.

5. Select the registered OU where your account will become a member.

6. Complete the **Account factory customization** section using the same steps as 7-12 of the **Create account** procedure. For more information, see [Provision Account Factory accounts with AWS Service Catalog](#).

You can view the status of your account progress on the **Organization** page. When your account enrollment is complete, the resources specified by the blueprint are already deployed within it.
Add a blueprint to an AWS Control Tower account

To add a blueprint to an existing AWS Control Tower member account, follow the Update account workflow in the AWS Control Tower console, and choose a new blueprint to add to the account. For more information, see Update and move Account Factory accounts with AWS Control Tower or with AWS Service Catalog.

Note
If you add a new blueprint to an account, the existing blueprint is overwritten.

Note
One blueprint may be deployed per AWS Control Tower account.

Update a blueprint

The following procedures describe how to update custom blueprints and how to deploy them.

To update your custom blueprints

1. Update your AWS CloudFormation template or your Terraform-based template (that is, your blueprint) with your new configurations.
2. Save the updated template (blueprint) as a new version in Service Catalog.

To deploy your updated blueprint

1. Navigate to the Organization page in the AWS Control Tower console.
2. Filter the Organization page by blueprint name and version.
3. Follow the Update account process, and deploy the latest blueprint version in your account.

If a blueprint update is unsuccessful

AWS Control Tower allows blueprint updates when the provisioned product is in the AVAILABLE state. If your provisioned product is in a TAINTED state, the update will fail. We recommend the following workaround:
1. In the AWS Service Catalog console, manually update the TAINTED provisioned product to change the state to AVAILABLE. For more information, see Updating provisioned products.

2. Then, follow the update account process from AWS Control Tower to fix the blueprint deployment error.

*We recommend this manual step because:* When you remove a blueprint, it can cause resources in the member account to be removed. Removing resources may affect your existing workloads. For this reason, we recommend this method rather than the alternative way of updating a blueprint—which is by removing and replacing the original blueprint—especially if you are running production workloads.

**Remove a blueprint from an account**

To remove a blueprint from an account, follow the **Update account** workflow to remove the blueprint and return the account to the AWS Control Tower default configurations.

As you enter the **Update account** workflow in the console, you will see that all of the account details are populated, and the customization details are not populated. If you leave these AFC details blank, AWS Control Tower removes the blueprint from the account. You will see a warning message before the action begins.

**Note**

AWS Control Tower adds a blueprint to an account only if you select a blueprint during the **Create account** or **Update account** process.

**Partner blueprints**

AWS Control Tower Account Factory Customization (AFC) provides access to pre-defined customization blueprints that are built and managed by AWS Partners. These partner blueprints help you customize your accounts for specific use cases. Each partner's blueprints help you build customized accounts, which are pre-configured to work with the product offerings from that particular partner.

To view a complete list of AWS Control Tower partner blueprints, navigate to the Service Catalog **Getting Started Library** in your console. Search for the source type **AWS Control Tower Blueprints**.
Considerations for Account Factory Customizations (AFC)

- AFC supports customization using a single Service Catalog blueprint product only.
- The Service Catalog blueprint products must be created in the hub account, and in the same Region as the AWS Control Tower landing zone home Region.
- The AWSControlTowerBlueprintAccess IAM role must be created with the proper name, permissions, and trust policy.
- AWS Control Tower supports two deployment options for blueprints: deploy to the home Region only, or deploy to all Regions governed by AWS Control Tower. Selection of Regions is not available.
- When you update a blueprint in a member account, the blueprint hub account ID and the Service Catalog blueprint product cannot be changed.
- AWS Control Tower doesn't support removing an existing blueprint and adding a new blueprint in a single blueprint update operation. You can remove a blueprint and then add a new blueprint in separate operations.
- AWS Control Tower changes behavior, based on whether you are creating or enrolling customized accounts, or non-customized accounts. If you are not creating or enrolling customized accounts with blueprints, AWS Control Tower creates an Account Factory provisioned product (through Service Catalog) in the AWS Control Tower management account. If you are specifying customization when creating or enrolling accounts with blueprints, AWS Control Tower does not create an Account Factory provisioned product in the AWS Control Tower management account.

In case of a blueprint error

Error while applying a blueprint

If an error occurs during the process of applying a blueprint to an account—either a new account or an existing account that you are enrolling into AWS Control Tower—the recovery procedure is the same. The account will exist, but it is not customized, and it is not enrolled into AWS Control Tower. To continue, follow the steps to enroll the account into AWS Control Tower, and add the blueprint at time of enrollment.

Error while creating the AWSControlTowerBlueprintAccess role, and workarounds
When you create the AWSControlTowerBlueprintAccess role from an AWS Control Tower account, you must be signed in as the principal using the AWSControlTowerExecution role. If you are signed in as any other, the CreateRole operation is prevented by an SCP, as shown in the artifact that follows:

```
{
    "Condition": {
        "ArnNotLike": {
            "aws:PrincipalArn": [
                "arn:aws:iam::*:role/AWSControlTowerExecution",
                "arn:aws:iam::*:role/stacksets-exec-*"
            ]
        }
    },
    "Action": [
        "iam:AttachRolePolicy",
        "iam:CreateRole",
        "iam:DeleteRole",
        "iam:DeleteRolePermissionsBoundary",
        "iam:DeleteRolePolicy",
        "iam:DetachRolePolicy",
        "iam:PutRolePermissionsBoundary",
        "iam:PutRolePolicy",
        "iam:UpdateAssumeRolePolicy",
        "iam:UpdateRole",
        "iam:UpdateRoleDescription"
    ],
    "Resource": [
        "arn:aws:iam::*:role/aws-controltower-*",
        "arn:aws:iam::*:role/AWSControlTower*",
        "arn:aws:iam::*:role/stacksets-exec-*"
    ],
    "Effect": "Deny",
    "Sid": "GRIAMROLEPOLICY"
}
```

The following workarounds are available:

- **(Most recommended)*** Assume the AWSControlTowerExecution role and create the AWSControlTowerBlueprintAccess role. If you choose this workaround, be sure to sign out from the AWSControlTowerExecution role immediately afterward, to prevent unintended changes to resources.
• Sign into an account that is not enrolled in AWS Control Tower, and therefore not subject to this SCP.
• Temporarily edit this SCP to permit the operation.
• (Strongly not recommended) Use your AWS Control Tower management account as your hub account, so it is not subject to the SCP.

**Customizing your policy document for AFC blueprints based on CloudFormation**

When you enable a blueprint through account factory, AWS Control Tower directs AWS CloudFormation to create a StackSet on your behalf. AWS CloudFormation requires access to your managed account to create AWS CloudFormation stacks in the StackSet. Although AWS CloudFormation already has administrator privileges in the managed account through the AWSControlTowerExecution role, this role is not assumable by AWS CloudFormation.

As part of enabling a blueprint, AWS Control Tower creates a role in the member account, which AWS CloudFormation may assume to complete the StackSet management tasks. The simplest way to enable your customized blueprint through account factory is to use an *allow-all* policy, because those policies are compatible with any blueprint template.

However, best practices suggest that you must restrict the permissions for AWS CloudFormation in the target account. You can provide a customized policy, which AWS Control Tower applies to the role it creates for AWS CloudFormation to use. For example, if your blueprint creates an SSM Parameter called *something-important*, you could provide the following policy:

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "AllowCloudFormationActionsOnStacks",
         "Effect": "Allow",
         "Action": "cloudformation:*",
         "Resource": "arn:aws:cloudformation:*:*:stack/*"
      },
      {
         "Sid": "AllowSsmParameterActions",
         "Effect": "Allow",
         "Action": [ "ssm:PutParameter",
                       "ssm:GetParameter"
         ],
         "Resource": "arn:aws:system:*/:"]
   }
}
```
The `AllowCloudFormationActionsOnStacks` statement is required for all AFC custom policies. AWS CloudFormation uses this role to create stack instances, therefore it requires permission to perform AWS CloudFormation actions on stacks. The `AllowSsmParameterActions` section is specific to the template being enabled.

**Resolve permission issues**

When you enable a blueprint with a restricted policy, you may find that there are insufficient permissions to enable the blueprint. To resolve these issues, revise your policy document and update the member account's blueprint preferences to use the corrected policy. To check that the policy is sufficient to enable the blueprint, ensure that the AWS CloudFormation permissions are granted, and that you can create a stack directly using that role.

**Additional permissions required for creating a Terraform-based Service Catalog product**

When you're creating an Service Catalog Terraform product for AFC, Service Catalog requires certain permissions to be added to your AFC custom IAM policy, in addition to permissions required to create the resources defined in your template. If you choose the default full `Admin` policy, you do not need to add these extra permissions.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Action": [
            "resource-groups:CreateGroup",
            "resource-groups:ListGroupResources",
            "resource-groups:DeleteGroup",
            "resource-groups:Tag"
         ],
         "Resource": "arn:aws:resource-groups:*:*:group/something-important"
      }
   ]
}
```
For more information about creating Terraform products in Service Catalog, see [Step 5: Create launch roles](#) in the Service Catalog Administrator Guide.

**Provision accounts with AWS Control Tower Account Factory for Terraform (AFT)**

AWS Control Tower Account Factory for Terraform (AFT) adopts a GitOps model that automates the process of account provisioning and updating in AWS Control Tower.

**Note**

AFT doesn't impact workflow performance in AWS Control Tower. If you provision an account through AFT or Account Factory, the same backend workflow occurs.
With AFT, you create an account request Terraform file, which contains the input that invokes the AFT workflow. After account provisioning and updating finishes, the AFT workflow continues by running the AFT account provisioning framework and account customizations steps.

Prerequisites

Before getting started with AFT, you must create the following:

- A fully deployed AFT environment. For more information, see Overview of AWS Control Tower Account Factory for Terraform (AFT) and Deploy AWS Control Tower Account Factory for Terraform (AFT).
- One or more AFT git repositories in your fully deployed AFT environment. For more information, see Post-deployment steps for AFT.

Tip

Optionally, you can create an account template folder in the aft-account-customizations repository.

For information about AWS Regions where AFT has deployment limitations, see Control limitations.

Provision a new account with AFT

To provision a new account with AFT, create an account request Terraform file. This file contains the input for parameters in the aft-account-request repository. After creating an account request Terraform file, begin processing your account request by running git push. This command invokes the ct-aft-account-request operation in the AWS CodePipeline, which is created in the AFT management account after account provisioning finishes. For more information, see AFT account provisioning pipeline.

Account request Terraform file parameters

You must include the following parameters in your account request Terraform file. You can view an example account request Terraform file on GitHub.

- The value of module name must be unique per the AWS account request.
• The value of `module source` is the path to the account request Terraform module that AFT provides.

• The value of `control_tower_parameters` captures the required input to create an AWS Control Tower account. The value includes the following input fields:
  • AccountEmail
  • AccountName
  • ManagedOrganizationalUnit
  • SSOUUserEmail
  • SSOUUserFirstName
  • SSOUUserLastName

**Note**
The input that you provide for `control_tower_parameters` can't be changed during the account provisioning.
The supported formats for specifying `ManagedOrganizationalUnit` in the `aft-account-request` repository include OUName and OUName (OU-ID).

• `account_tags` captures user-defined keys and values, which can tag AWS accounts according to business criteria. For more information, see [Tagging AWS Organizations resources](#) in the AWS Organizations User Guide.

• The value of `change_management_parameters` captures additional information, such as why an account request was created and who initiated the account request. The value includes the following input fields:
  • change_reason
  • change_requested_by

• `custom_fields` captures additional metadata with keys and values that deploy as SSM parameters in the vended account under `/aft/account-request/custom-fields/`. You can reference this metadata during account customizations to deploy proper controls. For example, an account that's subject to regulatory compliance might deploy additional AWS Config Rules. The metadata that you collect with `custom_fields` can invoke additional processing during account provisioning and updating. If a custom field is removed from the account request, the custom field is removed from the SSM Parameter Store for the vended account.
• (Optional) account_customizations_name captures the account template folder in the `aft-account-customizations` repository. For more information, see Account customizations.

Submit multiple account requests

AFT processes account requests one at a time, but you can submit multiple account requests to the AFT pipeline. When you submit multiple account requests to the AFT pipeline, AFT queues and processes the account requests in a first-in, first-out order.

Note
You can create an account request Terraform file for each account that you want AFT to provision or cascade multiple account requests in a single account request Terraform file.

Update an existing account

You can update accounts that AFT provisions by editing previously submitted account requests and running `git push`. This command invokes the account provisioning workflow and can process account update requests. You can update the input for ManagedOrganizationalUnit, which is part of the required value for `control_tower_parameters`, and other parameters in the account request Terraform file. For more information, see Provision a new account with AFT.

Note
The input that you provide for `control_tower_parameters` can't be changed during account provisioning.

The supported formats for specifying ManagedOrganizationalUnit in the `aft-account-request` repository include `OUName` and `OUName (OU-ID)`.

Update an account that AFT doesn't provision

You can update AWS Control Tower accounts created outside of AFT by specifying the account in the `aft-account-request` repository.
Prerequisites for updating an existing AWS account with AFT

- The AWS account must be enrolled in AWS Control Tower.
- The AWS account must be part of the AWS Control Tower organization.

Deploy AWS Control Tower Account Factory for Terraform (AFT)

This section is for administrators of AWS Control Tower environments who wish to set up Account Factory for Terraform (AFT) in their existing environment. It describes how to set up an Account Factory for Terraform (AFT) environment with a new, dedicated AFT management account.

Note: A Terraform module deploys AFT. This module is available in the [AFT repository on GitHub](https://github.com), and the entire AFT repository is considered the module. We recommend that you refer to the AFT modules on GitHub instead of cloning the AFT repository. This way you can control and consume updates to the modules as they are available.

For details about the latest releases of the AWS Control Tower Account Factory for Terraform (AFT) functionality, see the [Releases file](https://github.com) for this GitHub repository.

Deployment prerequisites

Before you configure and launch your AFT environment, you must have the following:

- An AWS Control Tower landing zone. For more information, see [Plan your AWS Control Tower landing zone](https://aws.amazon.com/documentation/awscostmanagement/guides/guides/).
- A home Region for your AWS Control Tower landing zone. For more information, see [How AWS Regions work with AWS Control Tower](https://aws.amazon.com).
• A Terraform version and distribution. For more information, see Terraform and AFT versions.

• A VCS provider for tracking and managing changes to code and other files.

**Note**

By default, AFT uses AWS CodeCommit. For more information, see What is AWS CodeCommit in the AWS CodeCommit User Guide. If you'd like to choose a different VCS provider, see Alternatives for version control of source code in AFT.

• A runtime environment where you can run the Terraform module that installs AFT.

• AFT feature options. For more information, see Enable feature options.

Configure and launch your AWS Control Tower Account Factory for Terraform

The following steps assume that you're familiar with the Terraform workflow. You can also learn more about deploying AFT by following the Introduction to AFT lab on the AWS Workshop Studio website.

**Step 1: Launch your AWS Control Tower landing zone**

Complete the steps in Getting started with AWS Control Tower. This is where you create the AWS Control Tower management account and set up your AWS Control Tower landing zone.

**Note**

Make sure to create a role for the AWS Control Tower management account that has AdministratorAccess credentials. For more information, see the following:

- IAM Identities (users, user groups, and roles) in the AWS Identity and Access Management User Guide
- AdministratorAccess in the AWS Managed Policy Reference Guide

**Step 2: Create a new organizational unit for AFT (recommended)**
We recommend that you create a separate OU in your AWS organization. This is where you deploy the AFT management account. Create the new OU with your AWS Control Tower management account. For more information, see Create a new OU.

**Step 3: Provision the AFT management account**

AFT requires that you provision an AWS account dedicated to AFT management operations. The AWS Control Tower management account, which is associated to your AWS Control Tower landing zone, vends the AFT management account. For more information, see Provision accounts with AWS Service Catalog Account Factory.

**Note**

If you created a separate OU for AFT, make sure to select this OU when you create the AFT management account.

**Note**

You might wait up to 30 minutes before the AFT management account is fully provisioned.

**Step 4: Verify the Terraform environment is available for deployment**

This step assumes that you have experience with Terraform and have procedures in place for executing Terraform. For more information, see Command: init on the HashiCorp Developer website.

**Note**

AFT supports Terraform Version 0.15.x or later.

**Step 5: Call the Account Factory for Terraform module to deploy AFT**

Call the AFT module with the role that you created for the AWS Control Tower management account that has AdministratorAccess credentials. AWS Control Tower provisions a Terraform module through the AWS Control Tower management account, which establishes all of the infrastructure required to orchestrate AWS Control Tower Account Factory requests.
Note

You can view the AFT module in the AFT repository on GitHub. The entire GitHub repository is considered the AFT module. Refer to the README file for information about the input that's required to run the AFT module and deploy AFT. Alternatively, you can view the AFT module in the Terraform Registry.

If you have pipelines in your environment that are established for managing Terraform, you can integrate the AFT module into your existing workflow. Otherwise, run the AFT module from any environment that's authenticated with the required credentials.

A Terraform state file is generated when you deploy AFT. This artifact describes the state of the resources that Terraform created. If you plan to update the AFT version, make sure to preserve the Terraform state file, or set up a Terraform backend using Amazon S3 and DynamoDB. The AFT module doesn't manage a backend Terraform state.

Note

You're responsible for protecting the Terraform state file. Some input variables might contain sensitive values, such as a private ssh key or Terraform token. Depending on your deployment method, these values can be viewable as plain text in the Terraform state file. For more information, see Sensitive data in State on the HashiCorp website.

Timeout causes deployment to fail. We recommend using AWS Security Token Service (STS) credentials to ensure you have a timeout that's sufficient for a full deployment. The minimum timeout for AWS STS credentials is 60 minutes. For more information, see Temporary security credentials in IAM in the AWS Identity and Access Management User Guide.

Note

You might wait up to 30 minute for AFT to finish deploying through the Terraform module.

Post-deployment steps

After the AFT infrastructure deployment is complete, follow these additional steps to complete the setup process and get ready to provision accounts.
Step 1: (Optional) Complete AWS CodeStar Connections with your desired VCS provider

If you choose a third-party VCS provider, AFT establishes AWS CodeStar Connections, and you confirm them. Refer to Alternatives for version control of source code in AFT to learn how to set up AFT with your preferred VCS.

The initial step of establishing the AWS CodeStar connection is accomplished by AFT. You must confirm the connection.

Step 2: (Mandatory) Populate each repository

AFT requires that you manage four repositories:

1. Account requests – This repository handles placing or updating account requests. Examples available. For more information about AFT account requests, see Provision a new account with AFT.

2. AFT account provisioning customizations – This repository manages customizations that are applied to all accounts created by and managed with AFT, before beginning the global customizations stage. Examples available. To create AFT account provisioning customizations, see Create your AFT account provisioning customizations state machine.

3. Global customizations – This repository manages customizations that are applied to all accounts created by and managed with AFT. Examples available. To create AFT global customizations, see Apply global customizations.

4. Account customizations – This repository manages customizations that are applied only to specific accounts created by and managed with AFT. Examples available. To create AFT account customizations, see Apply account customizations.

AFT expects that each of these repositories follow a specific directory structure. The templates that are used to populate your repositories and instructions that describe how to populate the templates are available in the Account Factory for Terraform module in the AFT github repository.

Overview of AWS Control Tower Account Factory for Terraform (AFT)

Account Factory for Terraform (AFT) sets up a Terraform pipeline to help you provision and customize accounts in AWS Control Tower. AFT provides you with the advantage of Terraform-based account provisioning while allowing you to govern your accounts with AWS Control Tower.

With AFT you create an account request Terraform file to get the input that triggers the AFT workflow for account provisioning. After the account provisioning stage is complete, AFT
automatically runs a series of steps before the account customizations stage begins. For more information, see AFT account provisioning pipeline.

AFT supports Terraform Cloud, Terraform Enterprise, and Terraform Open Source. With AFT you can initiate account creation using an input file and a simple `git push` command and customize new or existing accounts. Account creation includes all of the AWS Control Tower governance benefits and account customizations that help you meet your organization’s standard security procedures and compliance guidelines.

AFT supports account customization request tracing. Every time you submit an account customization request, AFT generates a unique tracing token that passes through an AFT customizations AWS Step Functions state machine, which logs the token as part of its execution. You can then use Amazon CloudWatch Logs insights queries to search timestamp ranges and retrieve the request token. As a result, you can see payloads that accompany the token, so you can trace your account customization request throughout the entire AFT workflow. For information about CloudWatch Logs and Step Functions, see the following:

- [What is Amazon CloudWatch Logs?](#) in the Amazon CloudWatch Logs User Guide
- [What is AWS Step Functions?](#) in the AWS Step Functions Developer Guide

AFT combines the capabilities of other AWS services as Component services, to build a framework, with pipelines that deploy Terraform Infrastructure as Code (IaC). AFT enables you to:

- Submit account provisioning and update requests in a GitOps model
- Store account metadata and audit history
- Apply account-level tags
- Add customizations to all accounts, to a set of accounts, or to individual accounts
- Enable feature options

AFT creates a separate account, called the AFT management account, to deploy AFT capabilities. Before you can set up AFT, you must have an existing AWS Control Tower landing zone. The AFT management account is not the same as the AWS Control Tower management account.

**AFT offers flexibility**

- **Flexibility for your platform:** AFT supports any Terraform Distribution for initial deployment and ongoing operation: Open Source, Cloud, and Enterprise.
• **Flexibility for your version control system**: AFT natively relies on AWS CodeCommit, but it supports alternative sources for AWS CodeStar Connections.

**AFT offers feature options**

You can enable several feature options, based on best practices:

- Creating an organization-level CloudTrail for logging data events
- Deleting the AWS default VPC for accounts
- Enrolling provisioned accounts into the AWS Enterprise Support plan

**Note**

The AFT pipeline is not intended for use in deploying resources, such as Amazon EC2 instances, that your accounts require to run your applications. It is intended solely for automated provisioning and customizing of AWS Control Tower accounts.

**Video Walkthrough**

This video (7:33) describes how to deploy accounts with AWS Control Tower Account Factory for Terraform. For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.

[Video Walkthrough of Automated Account Provisioning in AWS Control Tower](#).

**AFT Architecture**

**Order of operations**

You run AFT operations in the AFT management account. For a full account provisioning workflow, the order of stages from left to right in the diagram are as follows:

1. Account requests are created and submitted to the pipeline. You can create and submit more than one account request at a time. Account Factory processes requests in a first-in-first-out order. For more information, see [Submit multiple account requests](#).
2. Each account is provisioned. This stage runs in the AWS Control Tower management account.
3. Global customizations run in the pipelines that are created for each vended account.
4. If customizations are specified in the initial account provisioning requests, the customizations run only on targeted accounts. If you have an account that's already provisioned, you must initiate further customizations manually in the account's pipeline.

**AWS Control Tower Account Factory for Terraform – account provisioning workflow**

**Cost**

No additional charge exists for AFT. You pay only for the resources deployed by AFT, the AWS services enabled by AFT, and the resources you deploy in your AFT environment.

The default AFT configuration includes the allocation of AWS PrivateLink endpoints, for enhanced data protection and security, and a NAT gateway that is required to support AWS CodeBuild. For details on the pricing of this infrastructure, see the [AWS PrivateLink pricing](https://aws.amazon.com/privatelink/pricing/) and the [Amazon VPC pricing for the NAT Gateway](https://aws.amazon.com/vpc/pricing/). Contact your AWS account representative for more specific information about managing these costs. You can change these default settings for AFT.

**Terraform and AFT versions**

Account Factory for Terraform (AFT) supports Terraform version 0.15.x or later. You must provide a Terraform version as an input parameter for the AFT deployment process, as shown in the example that follows.

```
terraform_version = "0.15.1"
```
Terraform distributions

AFT supports three Terraform distributions:

- Terraform OSS
- Terraform Cloud
- Terraform Enterprise

These distributions are explained in the sections that follow. Provide the Terraform distribution of your choice as an input parameter during the AFT bootstrap process. For more information on AFT deployment and input parameters, see Deploy AWS Control Tower Account Factory for Terraform (AFT).

If you choose the Terraform Cloud or Terraform Enterprise distributions, the API token you specify for terraform_token must be a User or Team API token. An Organization token is not supported for all required APIs. For security reasons, you must avoid checking in this token's value to your version control system (VCS) by assigning a Terraform variable, as shown in the example that follows.

```
# Sensitive variable managed in Terraform Cloud:
terraform_token = var.terraform_cloud_token
```

Terraform Open Source Software (Terraform OSS)

When you select Terraform OSS as your distribution, AFT manages the Terraform backend for you in the AFT management account. AFT downloads the terraform-cli of your specified Terraform version to run during the AFT deployment and the AFT pipeline phases. The resulting Terraform state configuration is stored in an Amazon S3 bucket, named with the following form:

```
aft-backend-[account_id]-primary-region
```

AFT also creates an Amazon S3 bucket that replicates your Terraform state configuration in another AWS Region, for disaster recovery purposes, named with the following form:

```
aft-backend-[account_id]-secondary-region
```
We recommend that you enable multi-factor authentication (MFA) for delete functions on these Terraform state Amazon S3 buckets. To learn more about Terraform OSS, see the Terraform documentation.

To select Terraform OSS as your distribution, provide the following input parameter:

```terraform
terraform_distribution = "oss"
```

**Terraform Cloud**

When you select Terraform Cloud as your distribution, AFT creates workspaces for the following components in your Terraform Cloud organization, which initiates an API-driven workflow.

- Account request
- AFT customizations for accounts that AFT provisions
- Account customizations for accounts that AFT provisions
- Global customizations for accounts that AFT provisions

Terraform Cloud manages the resulting Terraform state configuration.

When you select Terraform Cloud as your distribution, provide the following input parameters:

- `terraform_distribution = "tfc"`
- `terraform_token` – This parameter contains the value of the Terraform Cloud token. AFT marks the as sensitive and stores the value as a secure string in the SSM parameter store in the AFT management account. We recommend that you periodically rotate the value of the Terraform token according to your company's security policies and compliance guidelines. The Terraform token should be a User or Team level API token. Organization tokens are not supported.
- `terraform_org_name` – This parameter contains the name of your Terraform Cloud organization.

**Note**

Multiple AFT deployments in a single Terraform Cloud organization is not supported.
For information about how to set up Terraform Cloud, see the Terraform documentation.

**Terraform Enterprise**

When you select Terraform Enterprise as your distribution, AFT creates workspaces for the following components in your Terraform Enterprise organization, and it triggers API-driven workflow for the resulting Terraform runs.

- Account request
- AFT account provisioning customizations for accounts provisioned by AFT
- Account customizations for accounts provisioned by AFT
- Global customizations for accounts provisioned by AFT

The resulting Terraform state configuration is managed by your Terraform Enterprise setup.

To select Terraform Enterprise as your distribution, provide the following input parameters:

- `terraform_distribution = "tfe"
- `terraform_token` – This parameter contains the value of your Terraform Enterprise token. AFT marks its value as sensitive and stores it as a secure string in the SSM parameter store, in the AFT management account. We recommend that you periodically rotate the value of the Terraform token, according to your company's security policies and compliance guidelines.
- `terraform_org_name` – This parameter contains the name of your Terraform Enterprise organization.
- `terraform_api_endpoint` – This parameter contains the URL of your Terraform Enterprise environment. The value of this parameter must be in the format:

  ```
  https://{fqdn}/api/v2/
  ```

See the Terraform documentation to learn more about how to set up Terraform Enterprise.

**Check the AFT version**

You can check your deployed AFT version by querying the AWS SSM Parameter Store key:

```
/aft/config/aft/version
```
If you use the registry method, you can pin the version.

```humpback
module "control_tower_account_factory" {
  source = "aws-ia/control_tower_account_factory/aws"
  version = "1.3.2"
  # insert the 6 required variables here
}
```

You can view more information about AFT versions in the AFT repository.

**Update the AFT version**

You can update your deployed AFT version by pulling it in from the main repository branch:

```
terraform get -update
```

After the pull is complete, you can re-run the Terraform plan or run apply to update the AFT infrastructure with the latest changes.

**Enable feature options**

AFT offers feature options based on best practices. You can opt-in to these features, by means of feature flags, during AFT deployment. Refer to Provision a new account with AFT for more information about AFT input configuration parameters.

These features are not enabled by default. You must explicitly enable each one in your environment.

**Topics**

- [AWS CloudTrail data events](#)
- [AWS Enterprise Support plan](#)
- [Delete the AWS default VPC](#)

**AWS CloudTrail data events**

When enabled, the AWS CloudTrail data events option configures these capabilities.

- Creates an Organization Trail in the AWS Control Tower management account, for CloudTrail
- Turns on logging for Amazon S3 and Lambda data events
• Encrypts and exports all the CloudTrail data events to an aws-aft-logs-* S3 bucket in the AWS Control Tower Log Archive account, with AWS KMS encryption

• Turns on the **Log file validation** setting

To enable this option, set the following feature flag to **True** in your AFT deployment input configuration.

```
aft_feature_cloudtrail_data_events
```

**Prerequisite**

Before you enable this feature option, be sure that trusted access for AWS CloudTrail is enabled in your organization.

**To check the status of trusted access for CloudTrail:**

1. Navigate to the AWS Organizations console.
2. Choose **Services > CloudTrail**.
3. Then select **Enable trusted access** in the upper right, if needed.

You may receive a warning message that advises you to use the AWS CloudTrail console, but in this case, disregard the warning. AFT creates the trail as part of enabling this feature option, after you allow trusted access. If trusted access is not enabled, you will receive an error message when AFT attempts to create your trail for data events.

**Note**

This setting works at the organization level. Enabling this setting affects all accounts in AWS Organizations, whether they are managed by AFT or not. All buckets in the AWS Control Tower Log Archive account at the time of enabling are excluded from Amazon S3 data events. Refer to [the AWS CloudTrail User Guide](https://docs.aws.amazon.com/AmazonCloudTrail/latest/userguide/) to learn more about CloudTrail.

**AWS Enterprise Support plan**

When this option is enabled, the AFT pipeline turns on the AWS Enterprise Support plan for accounts provisioned by AFT.
AWS accounts by default come with the AWS Basic Support plan enabled. AFT provides automated enrollment into the enterprise support level, for accounts that AFT provisions. The provisioning process opens a support ticket for the account, requesting it to be added to the AWS Enterprise Support plan.

To enable the Enterprise Support option, set the following feature flag to `True` in your AFT deployment input configuration.

```plaintext
aft_feature_enterprise_support=false
```

Refer to [Compare AWS Support Plans](#) to learn more about AWS Support Plans.

### Note

To allow this feature to operate, you must enroll the payer account into the Enterprise Support plan.

---

**Delete the AWS default VPC**

When you enable this option, AFT deletes all AWS default VPCs in the management account and in all AWS Regions, even if haven't deployed AWS Control Tower resources in those AWS Regions.

AFT doesn't delete AWS default VPCs automatically for any AWS Control Tower accounts that AFT provisions or for existing AWS accounts that you enroll in AWS Control Tower through AFT.

New AWS accounts are created with a VPC set up in each AWS Region, by default. Your enterprise may have standard practices for creating VPCs, which require you to delete the AWS default VPC and avoid enabling it, especially for the AFT management account.

To enable this option, set the following feature flag to `True` in your AFT deployment input configuration.

```plaintext
aft_feature_delete_default_vpcs_enabled
```

Refer to [Default VPC and default subnets](#) to learn more about default VPCs.
Resource considerations for AWS Control Tower Account Factory for Terraform

When you set up your landing zone using AWS Control Tower Account Factory for Terraform, several types of AWS resources are created within your AWS accounts.

Search for resources

- You can use tags to search for the most updated list of AFT resources. The key-value pair for your search is:

  Key: managed_by | Value: AFT

- For component services that do not support tags, you can locate resources with a search for aft in the resource names.

Tables of resources initially created, by account

AWS Control Tower Account Factory for Terraform management account

<table>
<thead>
<tr>
<th>AWS service</th>
<th>Resource type</th>
<th>Resource name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS Identity and Access Management</td>
<td>Roles</td>
<td>AWSAFTAdministrator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSAFTExecution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSAFTService</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-*</td>
</tr>
<tr>
<td>AWS Identity and Access Management</td>
<td>Policies</td>
<td>aws-ct-aft-*</td>
</tr>
<tr>
<td>CodeCommit</td>
<td>Repositories</td>
<td>aws-ct-aft-*</td>
</tr>
<tr>
<td>CodeBuild</td>
<td>Build Projects</td>
<td>aws-ct-aft-*</td>
</tr>
<tr>
<td>Code Pipeline</td>
<td>Pipelines</td>
<td><em>-baseline-</em></td>
</tr>
<tr>
<td>Amazon S3</td>
<td>Buckets</td>
<td><em>-aws-ct-aft-</em></td>
</tr>
<tr>
<td>AWS service</td>
<td>Resource type</td>
<td>Resource name</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-*</td>
</tr>
<tr>
<td>Lambda</td>
<td>Functions</td>
<td>aws-ct-aft-*</td>
</tr>
<tr>
<td>Lambda</td>
<td>Layers</td>
<td>aws-ct-aft-common-layer</td>
</tr>
<tr>
<td>DynamoDB</td>
<td>Tables</td>
<td>aws-ct-aft-request</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-request-audit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-request-metadata</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-controltower-events</td>
</tr>
<tr>
<td>Step Functions</td>
<td>State Machines</td>
<td>aws-ct-aft-prebaseline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-prebaseline-customizations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-trigger-baseline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-features</td>
</tr>
<tr>
<td>VPC</td>
<td>VPC</td>
<td>aws-ct-aft-vpc</td>
</tr>
<tr>
<td>Amazon SNS</td>
<td>Topics</td>
<td>aws-ct-aft-notifications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-failure-notifications</td>
</tr>
<tr>
<td>Amazon EventBridge</td>
<td>Event buses</td>
<td>aws-ct-aft-events-from-ct-management</td>
</tr>
<tr>
<td>Amazon EventBridge</td>
<td>Event rules</td>
<td>aws-ct-aft-capture-ct-events</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-lambda-account-request-processor</td>
</tr>
</tbody>
</table>
### AWS Control Tower User Guide

#### AWS service | Resource type | Resource name
---|---|---
Key Management Service (KMS) | Customer Managed Keys | *-aws-ct-aft-*
 |  | aws-ct-aft-*
AWS Systems Manager | Parameter store | /aws-ct-aft/account/*
 |  | /aws/ct-aft/config/*
Amazon SQS | Queues | aws-ct-aft-account-request.fifo
 |  | aws-ct-aft-account-request-dlg.fifo
CloudWatch | Log groups | /aws/*/aws-ct-aft-*
 |  | aws-ct-aft-*
AWS Support Center (Optional) | Support plans | Enterprise

**AWS accounts provisioned through AWS Control Tower Account Factory for Terraform**

#### AWS service | Resource type | Resource name
---|---|---
AWS Identity and Access Management | Roles | AWSAFTExecution
AWS Support Center (Optional) | Support plans | Enterprise

**AWS Control Tower management account**

#### AWS service | Resource type | Resource name
---|---|---
AWS Identity and Access Management | Roles | AWSAFTExecutionRole
 |  | AWSAFTExecution

---

Resources for AFT

---

Page 253
### AWS Control Tower

<table>
<thead>
<tr>
<th>AWS service</th>
<th>Resource type</th>
<th>Resource name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS Systems Manager</td>
<td>Parameter store</td>
<td>/aws-ct-aft/account/aws-ct-aft-management/account-id</td>
</tr>
<tr>
<td>AWS Organizations (Optional)</td>
<td>Service Control Policies</td>
<td>aws-ct-aft-protect-resources</td>
</tr>
<tr>
<td>CloudTrail (Optional)</td>
<td>Trails</td>
<td>aws-ct-aft-BaselineCloudTrail</td>
</tr>
<tr>
<td>AWS Support Center (Optional)</td>
<td>Support plans</td>
<td>Enterprise</td>
</tr>
</tbody>
</table>

### AWS Control Tower log archive account

<table>
<thead>
<tr>
<th>AWS service</th>
<th>Resource type</th>
<th>Resource name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS Identity and Access Management</td>
<td>Roles</td>
<td>AWSAFTExecutionRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSAFTExecution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-cloudtrail-data-events-role</td>
</tr>
<tr>
<td>Key Management Service (KMS)</td>
<td>Customer Managed Keys</td>
<td>*-aws-ct-aft-kms-gd-findings</td>
</tr>
<tr>
<td>Amazon S3</td>
<td>Buckets</td>
<td><em>-aws-ct-aft-logs</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-s3-access-logs*</td>
</tr>
<tr>
<td>AWS Support Center (Optional)</td>
<td>Support plans</td>
<td>Enterprise</td>
</tr>
</tbody>
</table>
AWS Control Tower audit account

<table>
<thead>
<tr>
<th>AWS service</th>
<th>Resource type</th>
<th>Resource name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS Identity and Access Management</td>
<td>Roles</td>
<td>AWSAFTExecutionRole</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AWSAFTExecution</td>
</tr>
<tr>
<td>Amazon S3</td>
<td>Buckets</td>
<td><em>-aws-ct-aft-logs-</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>aws-ct-aft-s3-access-logs*</td>
</tr>
<tr>
<td>AWS Support Center (Optional)</td>
<td>Support plans</td>
<td>Enterprise</td>
</tr>
</tbody>
</table>

**Required roles**

In general, roles and policies are part of identity and access management (IAM) in AWS. Refer to the [AWS IAM User Guide](#) for more information.

AFT creates multiple IAM roles and policies in the AFT management and AWS Control Tower management accounts to support the operations of the AFT pipeline. These roles are created based on the least privilege access model, which restricts permission to the minimally required sets of actions and resources for each role and policy. These roles and policies are assigned an AWS tag key:value pair, as `managed_by:AFT` for identification.

Besides these IAM roles, AFT creates three essential roles:

- the AWSAFTAdmin role
- the AWSAFTExecution role
- the AWSAFTService role

These roles are explained in the following sections.

**The AWSAFTAdmin role, explained**

When you deploy AFT, the AWSAFTAdmin role is created in the AFT management account. This role allows the AFT pipeline to assume the AWSAFTExecution role in AWS Control Tower...
and AFT provisioned accounts, thereby to perform actions related to account provisioning and customizations.

Here is the inline policy (JSON artifact) attached to the AWSAFTAdmin role:

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": "sts:AssumeRole",
            "Resource": [
                "arn:aws:iam::*:role/AWSAFTExecution",
                "arn:aws:iam::*:role/AWSAFTService"
            ]
        }
    ]
}
```

The following JSON artifact shows the trust relationship for the AWSAFTAdmin role. The placeholder number 012345678901 is replaced by the AFT management account ID number.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::012345678901:root"
            },
            "Action": "sts:AssumeRole"
        }
    ]
}
```

The AWSAFTExecution role, explained

When you deploy AFT, the AWSAFTExecution role is created in the AFT management and AWS Control Tower management accounts. Later, the AFT pipeline creates the AWSAFTExecution role in each AFT provisioned account during the AFT account provisioning stage.
AFT utilizes the AWSControlTowerExecution role initially, to create the AWSAFTExecution role in specified accounts. The AWSAFTExecution role allows the AFT pipeline to run the steps that are performed during the AFT framework's provisioning and provisioning customizations stages, for AFT provisioned accounts and for shared accounts.

Distinct roles help you limit scope

As a best practice, keep the customization permissions separate from the permissions allowed during your initial deployment of resources. Remember that the AWSAFTService role is intended for account provisioning, and the AWSAFTExecution role is intended for account customization. This separation limits the scope of permissions that are allowed during each phase of the pipeline. This distinction is especially important if you are customizing the AWS Control Tower shared accounts, because the shared accounts may contain sensitive information, such as billing details or user information.

Permissions for AWSAFTExecution role: **AdministratorAccess** – an AWS managed policy

The following JSON artifact shows the IAM policy (trust relationship) attached to the AWSAFTExecution role. The placeholder number 012345678901 is replaced by the AFT management account ID number.

Trust policy for AWSAFTExecution

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": {
        "AWS": "arn:aws:iam::012345678901:role/AWSAFTAdmin"
      },
      "Action": "sts:AssumeRole"
    }
  ]
}
```

The AWSAFTService role, explained
The AWSAFTService role deploys AFT resources in all enrolled and managed accounts, including the shared accounts and management account. Resources formerly were deployed by the AWSAFTExecution role only.

The AWSAFTService role is intended for use by the service infrastructure to deploy resources during the provisioning stage, and the AWSAFTExecution role is intended to be used only to deploy customizations. By assuming the roles in this way, you can maintain more granular access control during the each stage.

Permissions for AWSAFTService role: **AdministratorAccess** – an AWS managed policy

The following JSON artifact shows the IAM policy (trust relationship) attached to the AWSAFTService role. The placeholder number 012345678901 is replaced by the AFT management account ID number.

Trust policy for AWSAFTService

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::012345678901:role/AWSAFTAdmin"
            },
            "Action": "sts:AssumeRole"
        }
    ]
}
```

**Component services**

When you deploy AFT, components are added to your AWS environment from each of these AWS services.

- **AWS Control Tower** – AFT uses AWS Control Tower Account Factory in the AWS Control Tower management account to provision accounts.

- **Amazon DynamoDB** – AFT creates Amazon DynamoDB tables in the AFT management account, which store account requests, audit history of account updates, account metadata, and AWS Control Tower lifecycle events. AFT also creates DynamoDB Lambda triggers to initiate downstream processes, such as starting the AFT account provisioning workflow.
Amazon Simple Storage Service – AFT creates Amazon Simple Storage Service (S3) buckets in the AFT management account and the AWS Control Tower log archive account, which store logs generated by the AWS services that the AFT pipeline requires. AFT also creates a Terraform backend S3 bucket, in primary and secondary AWS Regions, to store Terraform states generated during AFT pipeline workflows.

Amazon Simple Notification Service – AFT creates Amazon Simple Notification Service (SNS) topics in the AFT management account, which stores success and failure notifications after processing every AFT account request. You may receive these messages using your choice of protocol.

Amazon Simple Queuing Service – AFT creates an Amazon Simple Queuing Service (Amazon SQS) FIFO queue in the AFT management account. The queue allows you to submit multiple account requests in parallel, but it sends one request at a time to AWS Control Tower Account Factory, for sequential processing.

AWS CodeBuild – AFT creates AWS CodeBuild build projects in the AFT management account to initialize, compile, test, and apply Terraform plans for AFT source code in various build stages.

AWS CodePipeline – AFT creates AWS CodePipeline pipelines in the AFT management account to integrate with your selected, supported AWS CodeStar connections provider for AFT source code, and to trigger build jobs in AWS CodeBuild.

AWS Lambda – AFT creates AWS Lambda functions and layers in the AFT management account to perform steps during the account request, AFT account provisioning, and account customizations processes.

AWS Systems Manager Parameter Store – AFT sets up the AWS Systems Manager Parameter Store in the AFT management account, to store the configuration parameters required for the AFT pipeline processes.

Amazon CloudWatch – AFT creates Amazon CloudWatch log groups in the AFT management account to store logs generated by AWS services employed by the AFT pipeline. The retention period for CloudWatch logs is set to Never Expire.

Amazon VPC – AFT creates an Amazon Virtual Private Cloud (VPC) to isolate services and resources in the AFT management account into a separate networking environment, for enhanced security.

AWS KMS – AFT uses the AWS Key Management Service (KMS) in the AFT management account and in the AWS Control Tower log archive account. AFT creates keys to encrypt Terraform states, data stored in DynamoDB tables, and SNS topics. These logs and artifacts are generated when AWS resources and services are deployed by AFT. KMS keys created by AFT have yearly rotation enabled by default.
• **AWS Identity and Access Management (IAM)** – AFT follows the recommended Least Privilege model. It creates AWS Identity and Access Management (IAM) roles and policies in the AFT management account, in AWS Control Tower accounts, and in AFT provisioned accounts, as needed, to perform actions required during the AFT pipeline workflow.

• **AWS Step Functions** – AFT creates AWS Step Functions state machines in the AFT management account. These state machines orchestrate and automate the process and steps for the AFT account provisioning framework and customizations.

• **Amazon EventBridge** – AFT creates an Amazon EventBridge event bus in the AFT and AWS Control Tower management account to capture and store AWS Control Tower lifecycle events long-term in the AFT management account's DynamoDB table. AFT creates AWS CloudWatch event rules in the AFT management and AWS Control Tower management accounts, which trigger multiple steps required during running of the AFT pipeline workflow.

• **AWS CloudTrail (Optional)** – When this feature is enabled, AFT creates an AWS CloudTrail organization trail in the AWS Control Tower management account, for logging data events for Amazon S3 buckets and AWS Lambda functions. AFT sends these logs to a central S3 bucket in the AWS Control Tower log archive account.

• **AWS Support (Optional)** – When this feature is enabled, AFT turns on the AWS Enterprise Support plan for accounts provisioned by AFT. By default, AWS accounts are created with the AWS Basic Support plan enabled.

### AFT account provisioning pipeline

After the account provisioning stage of the pipeline is complete, the AFT framework continues. It automatically runs a series of steps to ensure that the newly provisioned accounts have details in place, before the **Account customizations** stage begins.

**Here are the next steps that the AFT pipeline runs.**

1. Validates the account request input.
2. Retrieves information about the account provisioned, for example, the account ID.
3. Stores the account metadata in a DynamoDB table in the AFT management account.
4. Creates the **AWSAFTExecution** IAM role in the newly provisioned account. AFT assumes this role to perform the account customizations stage, because this role grants access to the account factory portfolio.
5. Applies the account tags that you provided as part of the account request input parameters.
6. Applies the AFT feature options you chose at the time of AFT deployment.

7. Applies the AFT account provisioning customizations you provided. The next section tells more about how to set up these customizations with an AWS Step Functions state machine, in a git repository. This stage is sometimes referred to as the account provisioning framework stage. It is part of the core provisioning process, but you've previously set up a framework that delivers customized integrations as part of your account provisioning workflow, before additional customizations are added to the accounts in the next stage.

8. For each account provisioned, it creates an AWS CodePipeline in the AFT management account, which will run to perform the (next, global) Account customizations stage.

9. Invokes the account customizations pipeline for each account provisioned (and targeted).

10. Sends a success or failure notification to the SNS topic, from which you can retrieve the messages.

**Set up the account provisioning framework customizations with a state machine**

If you set up custom, non-Terraform integrations before you provision your accounts, these customizations are included in your AFT account provisioning workflow. For example, you may require certain customizations to ensure that all accounts created by AFT are compliant with the standards and policies of your organization, such as security standards, and these standards may be added to accounts before additional customization. These account provisioning framework customizations are implemented on every provisioned account, before the global account customization stage begins next.

**Note**

The AFT feature described in this section is intended for advanced users who understand the functioning of AWS Step Functions. As an alternative, we recommend that you work with the global helpers in the account customizations stage.

The AFT account provisioning framework calls an AWS Step Functions state machine, which you define, to implement your customizations. Refer to the AWS Step Functions documentation to learn more about the possible state machine integrations.

Here are some common integrations.

- AWS Lambda functions in the language of your choice
• AWS ECS or AWS Fargate tasks, using Docker containers
• AWS Step Functions activities using custom workers, hosted either in AWS or on-premises
• Amazon SNS or SQS integrations

If no AWS Step Functions state machine is defined, the stage passes with a no-op. To create an AFT account provisioning customizations state machine, follow the instructions in Create your AFT account provisioning customizations state machine. Before you add customizations, be sure you have the prerequisites in place.

These types of integrations are not part of AWS Control Tower, and they cannot be added during the global pre-API stage of AFT account customization. Instead, the AFT pipeline allows you to set up these customizations as part of the provisioning process, and they are run in the provisioning workflow. You must implement these customizations by creating your state machine ahead of time, before you kick off the AFT account provisioning stage, as described in the following sections.

Prerequisites for creating a state machine

• A fully deployed AFT. See Deploy AWS Control Tower Account Factory for Terraform (AFT) for more information about AFT deployment.
• Set up a git repository in your environment for AFT account provisioning customizations. See Post-deployment steps for more information.

Create your AFT account provisioning customizations state machine

Step 1: Modify the state machine definition

Modify the example customizations.asl.json state machine definition. The example is available in the git repository you set up for storing AFT account provisioning customizations, in your post-deployment steps. Refer to the AWS Step Functions Developer Guide to learn more about state machine definitions.

Step 2: Include the corresponding Terraform configuration

Include Terraform files with the .tf extension in the same git repository with the state machine definition for your custom integration. For example, if you choose to call a Lambda function in your state machine task definition, you’d include the lambda .tf file in the same directory. Make sure you include the required IAM roles and permissions for your custom configurations.
When you provide the appropriate input, the AFT pipeline automatically invokes your state machine and deploys your customizations as part of the AFT account provisioning framework stage.

**To re-start the AFT account provisioning framework and customizations**

AFT runs the account provisioning framework and customizations steps for every account vended through the AFT pipeline. To re-start account provisioning customizations, you can use one of these two methods:

1. Make any change to an existing account in the account request repo.
2. Provision a new account with AFT.

**Account customizations**

AFT can deploy standard or customized configurations in provisioned accounts. In the AFT management account, AFT provides one pipeline for each account. With this pipeline, you can implement your customizations in all accounts, in a set of accounts, or in individual accounts. You can run Python scripts, bash scripts, and Terraform configurations, or you can interact with the AWS CLI as part of your account customizations stage.

**Overview**

After your customizations are specified in your chosen git repositories, either the one where you store your global customizations or where you store your account customizations, the account customizations stage is completed automatically by the AFT pipeline. To customize accounts retroactively, see Re-invoke customizations.

**Global customizations (optional)**

You can choose to apply certain customizations to all accounts that are provisioned by AFT. For example, if you need to create a particular IAM role, or to deploy a custom control in every account, the global customizations stage in AFT pipeline allows you to do so, automatically.

**Account customizations (optional)**

To customize an individual account, or a set of accounts, differently than other AFT provisioned accounts, you can leverage the account customizations portion of the AFT pipeline to implement account-specific configurations. For example, only a certain account may require access to an internet gateway.
Customization prerequisites

Before you begin to customize accounts, be sure these prerequisites are in place.

- A fully deployed AFT. For information about how to deploy, see Configure and launch your AWS Control Tower Account Factory for Terraform.
- Pre-populated git repositories for global customizations and account customizations in your environment. See Step 3: Populate each repository in Post-deployment steps for more information.

Apply global customizations

To apply global customizations, you must push a specific folder structure to your chosen repository.

- If your custom configurations are in the form of Python programs or scripts, place those under api_helpers/python folder in your repository.
- If your custom configurations are in the form of Bash scripts, place those under api_helpers folder in your repository.
- If your custom configurations are in the form of Terraform, place those under the terraform folder in your repository.
- Refer to the global customizations README file for more details on creating custom configurations.

⚠️ Note

Global customizations are applied automatically, after the AFT account provisioning framework stage in the AFT pipeline.

Apply account customizations

You can apply account customizations by pushing a specific folder structure to your chosen repository. Account customizations are applied automatically in the AFT pipeline and after the global customizations stage. You can also create multiple folders that contain different account
customizations in your account customizations repository. For each account customization that you require, use the following steps.

**To apply account customizations**

1. **Step 1: Create a folder for an account customization**

   In your chosen repository, copy the ACCOUNT_TEMPLATE folder that AFT provides to a new folder. The name of your new folder should match the account_customizations_name that you provide in your account request.

2. **Add the configurations to your specific account customizations folder**

   You can add configurations to your account customizations folder based on the format of your configurations.

   - If your custom configurations are in the form of Python programs or scripts, place them under the `account_customizations_name/api_helpers/python` folder in your repository.
   - If your custom configurations are in the form of Bash scripts, place them under the `account_customizations_name/api_helpers` folder in your repository.
   - If your custom configurations are in the form of Terraform, place them under the `account_customizations_name/terraform` folder in your repository.

   For more information about creating custom configurations, refer to the account customizations README file.

3. **Refer to the specific account_customizations_name parameter in the account request file**

   The AFT account request file includes the input parameter account_customizations_name. Enter the name of your account customization as the value for this parameter.

**Note**

You can submit multiple account requests for accounts in your environment. When you want to apply different or similar account customizations, specify the account
customizations using the account_customizations_name input parameter in your account requests. For more information, see Submit multiple account requests.

Re-invoke customizations

AFT provides a way to re-invoke customizations in the AFT pipeline. This method is useful when you’ve added a new customization step, or when you are making changes to an existing customization. When you re-invoke, AFT initiates the customizations pipeline to make changes to the AFT provisioned account. An event-source-based re-invoke allows you to apply customizations to individual accounts, to all accounts, to accounts according to their OU, or to accounts selected according to tags.

Follow these three steps to re-invoke customizations for AFT-provisioned accounts.

**Step 1: Push changes to global or account customizations git repositories**

You can update your global and account customizations as needed and push changes back to your git repositories. At this point, nothing happens. The customizations pipeline must be invoked by an event source, as explained in the next two steps.

**Step 2: Start an AWS Step Function run for re-invoking customizations**

AFT provides an AWS Step Function called aft-invoke-customizations in the AFT management account. The purpose of that function is to re-invoke the customization pipeline for AFT-provisioned accounts.

Here is an example of an event schema (JSON format) you can create to pass input to the aft-invoke-customizations AWS Step Function.

```json
{
   "include": [
      {
         "type": "all"
      },
      {
         "type": "ous",
         "target_value": [ "ou1","ou2"]
      },
```
The example event schema shows that you can choose accounts to include or exclude from the re-invoke process. You can filter by organizational unit (OU), account tags, and account ID. If you don't apply any filters and include the statement "type": "all", the customization for all AFT-provisioned accounts is re-invoked.

⚠️ Note
If your version of AWS Control Tower is 1.6.5 or later, you can target nested OUs with the syntax OU Name (ou-id-1234). For more information, see the following topic on GitHub.

After you fill out the event parameters, Step Functions runs and invokes the corresponding customizations. AFT can invoke a maximum of 5 customizations at a time. Step Functions waits and loops until all accounts matching the event criteria are complete.

**Step 3: Monitor the AWS Step Function output and watch AWS CodePipeline running**
• The resulting Step Function output contains account IDs that match the Step Function input event source.

• Navigate to AWS CodePipeline under Developer Tools and view the corresponding customization pipelines for the account ID.

Troubleshooting with AFT account customization request tracing

Account customization workflows that are based on AWS Lambda emit logs containing target account and customization request IDs. AFT allows you to trace and troubleshoot customization requests with Amazon CloudWatch Logs by providing you with CloudWatch Logs Insights queries that you can use to filter CloudWatch Logs related to your customization request by your target account or customization request ID. For more information, see Analyzing log data with Amazon CloudWatch Logs in the Amazon CloudWatch Logs User Guide.

To use CloudWatch Logs Insights for AFT

2. From the navigation pane, choose Logs, and then choose Logs insights.
3. Choose Queries.
4. Under Sample queries, choose Account Factory for Terraform, and then select one of the following queries:

   • Customization Logs by Account ID

   ```sql
   fields @timestamp, log_message.account_id as target_account_id,
   log_message.customization_request_id as customization_request_id,
   log_message.detail as detail, @logStream
   | sort @timestamp desc
   | filter log_message.account_id == "YOUR-ACCOUNT-ID" and @message like /
   customization_request_id/
   ```

   Note
   Make sure to replace "YOUR-ACCOUNT-ID" with your target account ID.

   • Customization Logs by Customization Request ID
Note

Make sure to replace "YOUR-CUSTOMIZATION-REQUEST-ID" with your customization request ID. You can find your customization request ID in the output of the AFT account provisioning framework AWS Step Functions state machine. For more information about the AFT account provisioning framework, see AFT account provisioning pipeline.

fields @timestamp, log_message.account_id as target_account_id,
log_message.customization_request_id as customization_request_id,
log_message.detail as detail, @logStream
| sort @timestamp desc
| filter log_message.customization_request_id == "YOUR-CUSTOMIZATION-REQUEST-ID"

5. After you select a query, make sure to select a time interval, and then choose Run query.

Alternatives for version control of source code in AFT

AFT natively uses AWS CodeCommit for a source code version control system (VCS), but it allows other AWS CodeStar Connections that meet your business requirements or existing architecture. You can specify a third-party VCS as part of the AFT deployment prerequisites.

AFT supports the following source code control alternatives:

- GitHub
- GitHub Enterprise Server
- BitBucket

If you select AWS CodeCommit as your VCS, no additional steps are required. By default, AFT creates the necessary git repositories in your environment, with default names. However, you can override the default repository names for CodeCommit, as needed, to comply with your organizational standards.
Set up an alternative source code version control system (custom VCS) with AFT

To set up an alternative source code version control system for your AFT deployment, follow these steps.

**Step 1: Create git repositories in a supported third-party version control system (VCS).**

If you are not using AWS CodeCommit, you must create git repositories in your AFT-supported, third-party VCS provider environment for the following items.

- **AFT account requests.** [Sample code available](#). For more information about AFT account requests, see [Provision a new account with AFT](#).
- **AFT account provisioning customizations.** [Sample code available](#). For more information on AFT account provisioning customizations, see [Create your AFT account provisioning customizations state machine](#).
- **AFT global customizations.** [Sample code available](#). For more information on AFT global customizations, see [Account customizations](#).
- **AFT account customizations.** [Sample code available](#). For more information on AFT account customizations, see [Account customizations](#).

**Step 2: Specify the VCS configuration parameters required for AFT deployment**

The following input parameters are needed to configure your VCS provider as part of the AFT deployment.

- **vcs_provider:** If you are not using AWS CodeCommit, specify the VCS provider as "bitbucket", "github", or "githubenterprise", based on your use case.
- **github_enterprise_url:** For GitHub Enterprise customers only, specify the GitHub URL.
- **account_request_repo_name:** By default, this value is set to `aft-account-request` for AWS CodeCommit users. If you created your repository with a new name in CodeCommit or in an AFT-supported, third-party VCS provider environment, update this input value with your actual repository name. For BitBucket, Github, and GitHub Enterprise, the repository name must have the format `[Org]/[Repo]`.
- **account_customizations_repo_name:** By default, this value is set to `aft-account-customizations` for AWS CodeCommit users. If you created repository with a new name in CodeCommit or in an AFT-supported, third-party VCS provider environment, update this input
value with your repository name. For BitBucket, Github, and GitHub Enterprise, the repository name must have the format [Org]/[Repo].

- **account_provisioning_customizations_repo_name**: By default, this value is set to aft-account-provisioning-customizations for AWS CodeCommit users. If you created repository with a new name in AWS CodeCommit or in an AFT-supported, third-party VCS provider environment, update this input value with your repository name. For BitBucket, Github, and GitHub Enterprise, the repository name must have the format [Org]/[Repo].

- **global_customizations_repo_name**: By default, this value is set to aft-global-customizations for AWS CodeCommit users. If you created repository with a new name in CodeCommit or in an AFT-supported, third-party VCS provider environment, update this input value with your repository name. For BitBucket, Github, and GitHub Enterprise, the repository name must have the format [Org]/[Repo].

- **account_request_repo_branch**: The branch is main by default, but the value can be overridden.

By default, AFT sources from the main branch of each git repository. You can override the branch name value with an additional input parameter. For more information about input parameters, refer to the README file in the [AFT Terraform module](https://github.com/aws-code-star/AFT-Terraform).

### Step 3: Complete the AWS CodeStar connection for third-party VCS providers

When your deployment runs, AFT either creates the required AWS CodeCommit repositories, or it creates an AWS CodeStar connection for your chosen third-party VCS provider. In case of the latter, you must manually sign in to the AFT management account's console to complete the pending AWS CodeStar connection. See the [AWS CodeStar documentation](https://aws.amazon.com/codestar/) for further instructions on completing the AWS CodeStar connection.

### Data protection

The [AWS shared responsibility model](https://aws.amazon.com/sharedresponsibility/) applies to data protection in AFT. For data protection purposes, we recommend the following best practices for security.

- Follow the Data Protection guidelines provided by AWS Control Tower. For details, see [Data Protection in AWS Control Tower](https://aws.amazon.com/codestar/)

- Preserve Terraform state configuration generated at the time of AFT deployment. For details, see [Deploy AWS Control Tower Account Factory for Terraform (AFT)](https://aws.amazon.com/codestar/)

- Rotate sensitive credentials periodically as directed by your organization’s security policy. Examples of secrets are Terraform tokens, git tokens, and so forth.
Encryption at rest

AFT creates Amazon S3 buckets, Amazon SNS topics, Amazon SQS queues, and Amazon DynamoDB databases that are encrypted at rest with AWS Key Management Service keys. KMS keys created by AFT have yearly rotation enabled by default. If you choose the Terraform Cloud or Terraform Enterprise distributions of Terraform, AFT includes a AWS Systems Manager SecureString parameter to store Terraform token values that are sensitive.

AFT uses AWS services described in Component services that are, by default, encrypted at rest. For details, see the AWS documentation for each component AWS service of AFT, and learn about the data protection practices followed by each service.

Encryption in transit

AFT relies upon AWS services described in Component services that employ encryption in transit, by default. For details, see the AWS documentation for each component AWS service of AFT, and learn about the data protection practices followed by each service.

For Terraform Cloud or Terraform Enterprise distributions, AFT calls an HTTPS endpoint API for access to your Terraform organization. If you choose a third-party VCS provider supported by AWS CodeStar connections, AFT calls an HTTPS endpoint API for access to your VCS provider organization.

Remove an account from AFT

This topic describes how to remove an account from AFT, so the AFT pipeline stops deploying and updating the account.

⚠️ Important

Removing an account from the AFT pipeline is irreversible and can result in a loss of state.

You might remove an account from AFT when you want to close an account for a retired application, isolate a compromised account, or move an account from one organization to another organization.
Note

Removing an account from AFT is different than deleting an AWS Control Tower account or AWS account. When you remove an account from AFT, AWS Control Tower still manages the account. To delete an AWS Control Tower account or AWS account, see the following:

- [Unmanage an account](#) in the [AWS Control Tower User Guide](#).
- [Closing an account](#) in the [AWS Billing User Guide](#).

To remove an account from the AFT pipelines

The following procedure describes how to remove an account from AFT.

1. **Remove account from git repository that stores account requests**

   In the git repository where you store account requests, delete the account request for the account you want to remove from AFT.

   When you remove an account request from the account request repository, AFT deletes the customization pipeline and account metadata. For more information, see the [1.8.0 release notes](#) for AFT on GitHub.

2. **Delete Terraform workspace (For Terraform Cloud and Terraform Enterprise customers only)**

   Delete the global customizations and account customizations workspaces for the account that you want to remove from AFT.

3. **Delete Terraform state from Amazon S3 backend**

   In the AFT management account, delete all relevant folders inside of the Amazon S3 buckets for the account that you want to remove from AFT.

Tip

In the following examples, replace 012345678901 with the AFT management account ID number.

Example: Terraform OSS
When you choose Terraform OSS, you find 3 folders for each account in the `aft-backend-012345678901-primary-region` and `aft-backend-012345678901-secondary-region` Amazon S3 buckets. These folders are related to the `account customizations state, customizations pipeline state, and global customizations state`.

**Example: Terraform Cloud or Terraform Enterprise**

When you choose Terraform Cloud or Terraform Enterprise, you find a folder for each account in the `aft-backend-012345678901-primary-region` and `aft-backend-012345678901-secondary-region` Amazon S3 buckets. These folders are related to the `customizations pipeline state`.

**Operational metrics**

By default, *Account Factory for Terraform (AFT)* sends anonymous operational metrics to AWS. We use this data to understand how customers are using AFT so we can improve the quality and features of the solution. You can opt out of data collection by changing a parameter during AFT deployment. When collection is enabled, the following data is sent to AWS:

- **Solution**: The AFT-specific identifier
- **Version**: The version of AFT
- **Universally Unique Identifier (UUID)**: Randomly generated, unique identifier for each AFT deployment
- **Timestamp**: Data-collection timestamp
- **Data**: AFT configuration and actions taken by the customer

AWS owns the data collected. Data collection is subject to the *AWS Privacy Policy*.

**Note**

Versions of AFT prior to 1.6.0 do not report usage metrics to AWS.

To opt out of reporting metrics:
• Set the input value of `aft_metrics_reporting` to `false` in your Terraform input configuration file, as shown in the example that follows, and redeploy AFT. This value is set to `true` by default, if you do not set it explicitly.

If you copy the example, remember to substitute your actual ID and Region values for the items given in strings with `x`.

```terraform
module "control_tower_account_factory" {
  source = "aws-ia/control_tower_account_factory/aws"

  # Required Vars
  ct_management_account_id    = "xxxxxxxxxxx"
  log_archive_account_id      = "xxxxxxxxxxx"
  audit_account_id            = "xxxxxxxxxxx"
  aft_management_account_id   = "xxxxxxxxxxx"
  ct_home_region              = "xx-xxxx-x"
  tf_backend_secondary_region = "xx-xxxx-x"

  # Optional Vars
  aft_metrics_reporting = false    # to opt out, set this value to false
}
```

Account Factory for Terraform (AFT) troubleshooting guide

This section can help you troubleshoot common issues that you might encounter when using Account Factory for Terraform (AFT).

Topics

• [General issues](#)

• [Issues related to account provisioning/registration](#)

• [Issues related to customizations invocation](#)

• [Issues related to the account customizations workflow](#)

General issues

• [Exceeded AWS resource quotas](#)
If your log groups indicate that you exceeded AWS resource quotas, contact AWS Support. Account Factory uses AWS services with resource quotas that include AWS CodeBuild, AWS Organizations, and AWS Systems Manager. For more information, see the following:

- **What is AWS CodeBuild?** in the CodeBuild User Guide.
- **What is AWS Organizations?** in the Organizations User Guide.
- **What is AWS Systems Manager?** in the Systems Manager User Guide.

### Outdated version of Account Factory

If you encounter an issue and believe the issue is a bug, make sure that you have the latest version of Account Factory. For more information, see Updating the Account Factory version.

### Local changes were made to the Account Factory source code

Account Factory is an open source project. AWS Control Tower supports the Account Factory core code. If you make a local change to the Account Factory core code, AWS Control Tower only supports your Account Factory deployment on a best-effort basis.

### Insufficient Account Factory role permissions

Account Factory creates IAM roles and policies to manage vended account deployments and customizations. If you change these roles or policies, the Account Factory pipeline may be unable to perform certain actions. For more information, see Required roles.

### Account repositories not populated correctly

Make sure that you follow the post-deployment steps before provisioning accounts.

### Not detecting drift after changing the OU manually

#### Note

AWS Control Tower detects drift automatically. For information about resolving drift, see Detect and resolve drift in AWS Control Tower.

Drift isn't detected when the organizational unit (OU) is changed manually. This is due to the event-driven nature of Account Factory. When an account request is submitted, the resource that Terraform manages is an Amazon DynamoDB item, not a direct account. After an item is changed, the request is put in a queue, where AWS Control Tower processes them through...
Service Catalog (the service that manages account details). If you change the OU manually, drift isn't detected because the account request hasn't changed.

**Issues related to account provisioning/registration**

- **Account request (email address/name) already exists**

  The issue typically results in an Service Catalog product failure during provisioning or as ConditionalCheckFailedException.

  You can find more information about the issue by doing one of the following:
  - Review your Terraform or CloudWatch Logs log groups.
  - Review the failures that are emitted to the Amazon SNS topic aft-failure-notifications.

- **Malformed account request**

  Make sure that your account request follows the expected schema. For examples, see [terraform-aws-control_tower_account_factory](https://github.com) on GitHub.

- **Exceeded AWS Organizations resource quotas**

  Make sure that your account request doesn't exceed AWS Organizations resource quotas. For more information, see [Quotas for AWS Organizations](#)

**Issues related to customizations invocation**

- **Target account not onboarded to Account Factory**

  Make sure all accounts that are included in a customization request have been onboarded to Account Factory. For more information, see [Update an existing account](#).

- **Account that customization request targets exists in the DynamoDB table aft-request-metadata, but not in account request repository**

  Format your customization invocation request to exclude the offending account by doing one of the following:
  - In the DynamoDB table aft-request-metadata, delete the entry referencing the account that's no longer in your account request repository.
  - Not using "all" as the target.
• Not targeting the OU that the account belongs to.
• Not targeting the account directly.

**Used incorrect token for Terraform Cloud**

Make sure that you set up the correct token. Terraform Cloud only supports team-based tokens, not organization-based tokens.

**Failed to create account before account customizations pipeline is created; can't customize account**

Make a change to the account specification in the account request repository. When you make a change, such as changing a tag value for an account, Account Factory follows the path that tries to create the pipeline, even if the pipeline doesn't exist.

**Issues related to the account customizations workflow**

If you're experiencing issues related to the account customizations workflow, make sure that your version of AFT is 1.8.0 or higher, and that you delete all instances of account-related metadata from your DynamoDB request table.

For information about AFT version 1.8.0, see [Release 1.8.0](https://github.com/aws/aws-account-factory-toolkit) on GitHub.

For information about how to check and update your version of AFT, see the following:

- [Check the AFT version](#)
- [Update the AFT version](#)

You can also trace and troubleshoot customization requests by using Amazon CloudWatch Logs Insights queries to filter logs containing your target account and customization request IDs. For more information, see [Troubleshooting with AFT account customization request tracing](#).
Detect and resolve drift in AWS Control Tower

Identifying and resolving drift is a regular operations task for AWS Control Tower management account administrators. Resolving drift helps to ensure your compliance with governance requirements.

When you create your landing zone, the landing zone and all the organizational units (OUs), accounts, and resources are compliant with the governance rules enforced by your chosen controls. As you and your organization members use the landing zone, changes in this compliance status may occur. Some changes may be accidental, and some may be made intentionally to respond to time-sensitive operational events.

Drift detection assists you in identifying resources that need changes or configuration updates to resolve the drift.

Detecting drift

AWS Control Tower detects drift automatically. To detect drift, the AWSControlTowerAdmin role requires persistent access to your management account so AWS Control Tower can make read-only API calls to AWS Organizations. These API calls show up as AWS CloudTrail events.

Drift is surfaced in the Amazon Simple Notification Service (Amazon SNS) notifications that are aggregated in the audit account. Notifications in each member account send alerts to a local Amazon SNS topic, and to a Lambda function.

For controls that are part of the AWS Security Hub Service-Managed Standard: AWS Control Tower, drift is shown on the Account and Account details pages in the AWS Control Tower console, as well as by means of an Amazon SNS notification.

Member account administrators can (and as a best practice, they should) subscribe to the SNS drift notifications for specific accounts. For example, the aws-controltower-AggregateSecurityNotifications SNS topic provides drift notifications. The AWS Control Tower console indicates to management account administrators when drift has occurred. For more information about SNS topics for drift detection and notification, see Drift prevention and notification.

Drift notification de-duplication
If the same type of drift occurs on the same set of resources multiple times, AWS Control Tower sends an SNS notification only for the initial instance of drift. If AWS Control Tower detects that this instance of drift has been remediated, it sends another notification only if drift re-occurs for those identical resources.

Examples: Account drift and SCP drift are handled in the following manner

- If you modify the same managed SCP multiple times, you receive a notification for the first time you modify it.
- If you modify a managed SCP, then remediate drift, then modify it again, you'll receive two notifications.

Types of account drift

- Account moved between OUs
- Account removed from organization

Note

When you move an account from one OU to another, the controls from the previous OU are not removed. If you enable any new hook-based control on the destination OU, the old hook-based control is removed from the account, and the new control replaces it. Controls implemented with SCPs and AWS Config rules always must be removed manually when an account changes OUs.

Types of policy drift

- SCP updated
- SCP attached to OU
- SCP detached from OU
- SCP attached to account

For more information, see Types of Governance Drift.
Resolving drift

Although detection is automatic, the steps to resolve drift must be done through the console.

- Many types of drift can be resolved through the Landing zone settings page. You can choose the Repair button in the Versions section to repair these types of drift.
- If your OU has fewer than 300 accounts, you can repair drift in Account Factory provisioned accounts, or SCP drift, by selecting Re-register OU on the Organization page or the OU details page.
- You may be able to repair account drift, such as Moved Member Account, by updating an individual account. For more information, see Update the account in the console.

Note
When you repair your landing zone, the landing zone is upgraded to the latest landing zone version.

Considerations about drift and SCP scans

AWS Control Tower scans your managed SCPs daily to verify that the corresponding controls are applied correctly and that they have not drifted. To retrieve the SCPs and run checks on them, AWS Control Tower calls AWS Organizations on your behalf, using a role in your management account.

If an AWS Control Tower scan discovers drift, you'll receive a notification. AWS Control Tower sends only one notification per drift issue, so if your landing zone already is in a state of drift, you won't receive additional notifications unless a new drift item is found.

AWS Organizations limits how often each of its APIs can be called. This limit is expressed in transactions per second (TPS), and known as the TPS limit, throttling rate, or API request rate. When AWS Control Tower audits your SCPs by calling AWS Organizations, the API calls that AWS Control Tower makes are counted towards your TPS limit, because AWS Control Tower uses the management account to make the calls.

In rare situations, this limit can be reached when you call the same APIs repeatedly, whether through a third-party solution or a custom script you wrote. For example, if you and AWS Control Tower call the same AWS Organizations APIs at the same moment in time (within 1 second), and
the TPS limits are reached, subsequent calls are throttled. That is, these calls return an error such as Rate exceeded.

**If an API request rate is exceeded**

- If AWS Control Tower hits the limit and is throttled, we pause the execution of the audit and resume it at a later time.
- If your workload hits the limit and is throttled, the result can range from slight latency all the way to a fatal error in the workload, depending on how the workload is configured. This edge case is something to be aware of.

**A daily SCP scan consists of**

1. Retrieving all of your OUs.
2. For each registered OU, retrieving all SCPs managed by AWS Control Tower that are attached to the OU. Managed SCPs have identifiers that begin with `aws-guardrails`.
3. For each preventive control enabled on the OU, verifying that the control's policy statement is present in the OU's managed SCPs.

The daily scans consume the TPS for the following AWS Organizations APIs:

<table>
<thead>
<tr>
<th>API</th>
<th>Burst Rate</th>
<th>Sustained Rate</th>
<th>Landing Zone Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>listOrganizationalUnits</td>
<td>8</td>
<td>5</td>
<td>1 per landing zone</td>
</tr>
<tr>
<td>listPoliciesForTarget</td>
<td>8</td>
<td>5</td>
<td>1 per registered OU</td>
</tr>
<tr>
<td>describePolicy</td>
<td>2</td>
<td></td>
<td>1 per managed SCP</td>
</tr>
</tbody>
</table>

An OU may have one or more managed SCPs.

**Types of drift to repair right away**

Most types of drift can be resolved by administrators. A few types of drift must be repaired immediately, including deletion of an organizational unit that the AWS Control Tower landing zone requires. Here are some examples of major drift that you may wish to avoid:
• **Don’t delete the Security OU:** The organizational unit originally named **Security** during landing zone setup by AWS Control Tower should not be deleted. If you delete it, you'll see an error message instructing you to repair the landing zone immediately. You won’t be able to take any other actions in AWS Control Tower until the repair is complete.

• **Don’t delete required roles:** AWS Control Tower checks certain AWS Identity and Access Management (IAM) roles when you log into the console for **IAM role drift.** If these roles are missing or inaccessible, you'll see an error page instructing you to repair your landing zone. These roles are AWSControlTowerAdmin, AWSControlTowerCloudTrailRole, AWSControlTowerStackSetRole.

For more information about these roles, see [Permissions Required to Use the AWS Control Tower Console](#).

• **Don’t delete all Additional OUs:** If you delete the organizational unit originally named **Sandbox** during landing zone setup by AWS Control Tower, your landing zone will be in a state of drift, but you still can use AWS Control Tower. At least one Additional OU is required for AWS Control Tower to operate, but it doesn’t have to be the **Sandbox** OU.

• **Don’t remove shared accounts:** If you remove shared accounts from Foundational OUs, such as removing the logging account from the Security OU, your landing zone will be in a state of drift and must be repaired before you can continue using the AWS Control Tower console.

## Repairable changes to resources

Here’s a list of changes to AWS Control Tower resources that are permitted, although they create repairable drift. Results of these permitted operations are viewable in the AWS Control Tower console, although a refresh may be required.

For more information about how to resolve the resulting drift, see [Managing Resources Outside of AWS Control Tower](#).

### Changes Permitted Outside the AWS Control Tower Console

• Change the name of a registered OU.

• Change the name of the Security OU.

• Change the name of member accounts in non-Foundational OUs.

• Change the name of AWS Control Tower shared accounts in the Security OU.

• Delete a non-Foundational OU.
• Delete an enrolled account from a non-Foundational OU.
• Change the email address of a shared account in the Security OU.
• Change the email address of a member account in a registered OU.

Note
Moving accounts between OUs is considered drift, and it must be repaired.

Drift and New Account Provisioning

If your landing zone is in a state of drift, the Enroll account feature in AWS Control Tower will not work. In that case, you must provision new accounts through AWS Service Catalog. For instructions, see Provision accounts with AWS Service Catalog Account Factory.

In particular, if you've made certain changes to your accounts by means of Service Catalog, such as changing the name of your portfolio, the Enroll account feature will not work.

Types of Governance Drift

Governance drift, also called organizational drift occurs when OUs, SCPs, and member accounts are changed or updated. The types of governance drift that can be detected in AWS Control Tower are as follows:

• Moved Member Account
• Removed Member Account
• Unplanned Update to Managed SCP
• SCP Attached to Member Account
• SCP Attached to Managed OU
• SCP Detached from Managed OU
• Deleted Foundational OU
• Security Hub control drift
• Trusted access disabled
Another type of drift is *landing zone drift*, which may be found through the management account. Landing zone drift consists of IAM role drift, or any type of organizational drift that specifically affects Foundational OUs and shared accounts.

A special case of landing zone drift is *role drift*, which is detected when a required role is not available. If this type of drift occurs, the console displays a warning page and some instructions on how to restore the role. Your landing zone is unavailable until the role drift is repaired. For more information about drift, see *Don't delete required roles* in the section called *Types of drift to repair right away*.

AWS Control Tower does not look for drift regarding other services that work with the management account, including CloudTrail, CloudWatch, IAM Identity Center, AWS CloudFormation, AWS Config, and so forth. No drift detection is available in child accounts, because these accounts are protected by preventive mandatory controls.

However, it does report drift regarding controls that are part of the AWS Security Hub Service-managed Standard: AWS Control Tower.

### Moved Member Account

This type of drift occurs on the account rather than the OU. This type of drift can occur when an AWS Control Tower member account, the audit account, or the log archive account is moved from a registered AWS Control Tower OU to any other OU. The following is an example of the Amazon SNS notification when this type of drift is detected.

```json
{
   "Message" : "AWS Control Tower has detected that your member account 'account-email@amazon.com (012345678909)' has been moved from organizational unit 'Sandbox (ou-0123-eEXAMPLE)' to 'Security (ou-3210-1EXAMPLE)'. For more information, including steps to resolve this issue, see 'https://docs.aws.amazon.com/console/controltower/move-account'",
   "ManagementAccountId" : "012345678912",
   "OrganizationId" : "o-123EXAMPLE",
   "DriftType" : "ACCOUNT_MOVED_BETWEEN_OUS",
   "RemediationStep" : "Re-register this organizational unit (OU), or if the OU has more than 300 accounts, you must update the provisioned product in Account Factory.",
   "AccountId" : "012345678909",
   "SourceId" : "012345678909",
   "DestinationId" : "ou-3210-1EXAMPLE"
}
```
Resolutions

When this type of drift occurs for an Account Factory provisioned account in an OU with up to 300 accounts, you can resolve it by:

- Navigating to the Organization page in the AWS Control Tower console, selecting the account, and choosing Update account at the upper right (fastest option for individual accounts).
- Navigating to the Organization page in the AWS Control Tower console, then choosing Re-register for the OU that contains the account (fastest option for multiple accounts). For more information, see Register an existing organizational unit with AWS Control Tower.
- Updating the provisioned product in Account Factory. For more information, see Update and move account factory accounts with AWS Control Tower or with AWS Service Catalog.

Note

If you have several individual accounts to update, also see this method for making updates with a script: Provision and update accounts using automation.

- When this type of drift occurs in an OU with more than 300 accounts, the drift resolution may depend on which type of account has been moved, as explained in the next paragraphs. For more information, see Update Your Landing Zone.
  - If an Account Factory provisioned account is moved – In an OU with fewer than 300 accounts, you can resolve the account drift by updating the provisioned product in Account Factory, by re-registering the OU, or by updating your landing zone.
    In an OU with more than 300 accounts, you must resolve the drift by making an update to each moved account, either through the AWS Control Tower console or the provisioned product because re-register OU will not perform the update. For more information, see Update and move account factory accounts with AWS Control Tower or with AWS Service Catalog.
  - If a shared account is moved – You can resolve the drift from moving the audit or log archive account by updating your landing zone. For more information, see Update Your Landing Zone.
Deprecation field name

The field name MasterAccountID has been changed to ManagementAccountID to comply with AWS guidelines. The old name is deprecated. Beginning in 2022, scripts that contain the deprecated field name will no longer work.

Removed Member Account

This type of drift can occur when a member account is removed from a registered AWS Control Tower organizational unit. The following example shows the Amazon SNS notification when this type of drift is detected.

```json
{
    "Message" : "AWS Control Tower has detected that the member account 012345678909 has been removed from organization o-123EXAMPLE. For more information, including steps to resolve this issue, see 'https://docs.aws.amazon.com/console/controltower/remove-account'",
    "ManagementAccountId" : "012345678912",
    "OrganizationId" : "o-123EXAMPLE",
    "DriftType" : "ACCOUNT_REMOVED_FROM_ORGANIZATION",
    "RemediationStep" : "Add account to Organization and update Account Factory provisioned product",
    "AccountId" : "012345678909"
}
```

Resolution

- When this type of drift occurs in a member account, you can resolve the drift by updating the account in the AWS Control Tower console, or in Account Factory. For example, you can add the account to another registered OU from the Account Factory update wizard. For more information, see Update and move account factory accounts with AWS Control Tower or with AWS Service Catalog.
- If a shared account is removed from a Foundational OU, you must resolve the drift by repairing your landing zone. Until this drift is resolved, you will not be able to use the AWS Control Tower console.
- For more information about resolving drift for accounts and OUs, see If you manage resources outside of AWS Control Tower.
Note

In Service Catalog, the Account Factory provisioned product that represents the account is not updated to remove the account. Instead, the provisioned product is displayed as TAINED and in an error state. To clean up, go to the Service Catalog, choose the provisioned product, and then choose Terminate.

Unplanned Update to Managed SCP

This type of drift can occur when an SCP for a control is updated in the AWS Organizations console or programmatically using the AWS CLI or one of the AWS SDKs. The following is an example of the Amazon SNS notification when this type of drift is detected.

```json
{
  "Message": "AWS Control Tower has detected that the managed service control policy 'aws-guardrails-012345 (p-tEXAMPLE)', attached to the registered organizational unit 'Security (ou-0123-1EXAMPLE)', has been modified. For more information, including steps to resolve this issue, see 'https://docs.aws.amazon.com/console/controltower/update-scp',
  "ManagementAccountId": "012345678912",
  "OrganizationId": "o-123EXAMPLE",
  "DriftType": "SCP_UPDATED",
  "RemediationStep": "Update Control Tower Setup",
  "OrganizationalUnitId": "ou-0123-1EXAMPLE",
  "PolicyId": "p-tEXAMPLE"
}
```

Resolution

When this type of drift occurs in an OU with up to 300 accounts, you can resolve it by:

- Navigating to the Organization page in the AWS Control Tower console to re-register the OU (fastest option). For more information, see Register an existing organizational unit with AWS Control Tower.
- Updating your landing zone (slower option). For more information, see Update Your Landing Zone.
When this type of drift occurs in an OU with more than 300 accounts, resolve it by updating your landing zone. For more information, see Update Your Landing Zone.

**SCP Attached to Managed OU**

This type of drift can occur when an SCP for a control is attached to any other OU. This occurrence is especially common when you are working on your OUs from outside of the AWS Control Tower console. The following is an example of the Amazon SNS notification when this type of drift is detected.

```
{
   "Message" : "AWS Control Tower has detected that the managed service control policy 'aws-guardrails-012345 (p-tEXAMPLE)' has been attached to the registered organizational unit 'Sandbox (ou-0123-1EXAMPLE)'. For more information, including steps to resolve this issue, see 'https://docs.aws.amazon.com/console/controltower/scp-detached-ou'",
   "ManagementAccountId" : "012345678912",
   "OrganizationId" : "o-123EXAMPLE",
   "DriftType" : "SCP_ATTACHED_TO_OU",
   "RemediationStep" : "Update Control Tower Setup",
   "OrganizationalUnitId" : "ou-0123-1EXAMPLE",
   "PolicyId" : "p-tEXAMPLE"
}
```

**Resolution**

When this type of drift occurs in an OU with up to 300 accounts, you can resolve it by:

- Navigating to the **Organization** page in the AWS Control Tower console to re-register the OU (fastest option). For more information, see Register an existing organizational unit with AWS Control Tower.
- Updating your landing zone (slower option). For more information, see Update Your Landing Zone.

When this type of drift occurs in an OU with more than 300 accounts, resolve it by updating your landing zone. For more information, see Update Your Landing Zone.
SCP Detached from Managed OU

This type of drift can occur when an SCP for a control has been detached from an OU that's managed by AWS Control Tower. This occurrence is especially common when you’re working from outside of the AWS Control Tower console. The following is an example of the Amazon SNS notification when this type of drift is detected.

```json
{
    "Message": "AWS Control Tower has detected that the managed service control policy 'aws-guardrails-012345 (p-tEXAMPLE)' has been detached from the registered organizational unit 'Sandbox (ou-0123-1EXAMPLE)'. For more information, including steps to resolve this issue, see 'https://docs.aws.amazon.com/console/controltower/scp-detached',
    "ManagementAccountId": "012345678912",
    "OrganizationId": "o-123EXAMPLE",
    "DriftType": "SCP_DETACHED_FROM_OU",
    "RemediationStep": "Update Control Tower Setup",
    "OrganizationalUnitId": "ou-0123-1EXAMPLE",
    "PolicyId": "p-tEXAMPLE"
}
```

Resolution

When this type of drift occurs in an OU with up to 300 accounts, you can resolve it by:

- Navigating to the OU in the AWS Control Tower console to re-register the OU (fastest option). For more information, see Register an existing organizational unit with AWS Control Tower.

- Updating your landing zone (slower option). If the drift is affecting a mandatory control, the update process creates a new service control policy (SCP) and attaches it to the OU to repair the drift. For more information about how to update your landing zone, see Update Your Landing Zone.

When this type of drift occurs in an OU with more than 300 accounts, resolve it by updating your landing zone. If the drift is affecting a mandatory control, the update process creates a new service control policy (SCP) and attaches it to the OU to repair the drift. For more information about how to update your landing zone, see Update Your Landing Zone.
SCP Attached to Member Account

This type of drift can occur when an SCP for a control is attached to an account in the Organizations console. Guardrails and their SCPs can be enabled on OUs (and thus applied to all of an OU's enrolled accounts) through the AWS Control Tower console. The following is an example of the Amazon SNS notification when this type of drift is detected.

```
{
    "Message": "AWS Control Tower has detected that the managed service control policy 'aws-guardrails-012345 (p-tEXAMPLE)' has been attached to the member account 'account-email@amazon.com (012345678909)'. For more information, including steps to resolve this issue, see 'https://docs.aws.amazon.com/console/controltower/scp-detached-account'",
    "ManagementAccountId": "012345678912",
    "OrganizationId": "o-123EXAMPLE",
    "DriftType": "SCP_ATTACHED_TO_ACCOUNT",
    "RemediationStep": "Re-register this organizational unit (OU)",
    "AccountId": "012345678909",
    "PolicyId": "p-tEXAMPLE"
}
```

Resolution

This type of drift occurs on the account rather than the OU.

When this type of drift occurs for accounts in a Foundational OU, such as the Security OU, the resolution is to update your landing zone. For more information, see Update Your Landing Zone.

When this type of drift occurs in a non-Foundational OU with up to 300 accounts, you can resolve it by:

- Detaching the AWS Control Tower SCP from the account factory account.
- Navigating to the OU in the AWS Control Tower console to re-register the OU (fastest option).
  For more information, see Register an existing organizational unit with AWS Control Tower.

When this type of drift occurs in an OU with more than 300 accounts, you may attempt to resolve it by updating the account factory configuration for the account. It may not be possible to resolve it successfully. For more information, see Update Your Landing Zone.
Deleted Foundational OU

This type of drift applies only to AWS Control Tower Foundational OUs, such as the Security OU. It can occur if a Foundational OU is deleted outside of the AWS Control Tower console. Foundational OUs cannot be moved without creating this type of drift, because moving an OU is the same as deleting it and then adding it someplace else. When you resolve the drift by updating your landing zone, AWS Control Tower replaces the Foundational OU in the original location. The following example shows an Amazon SNS notification you may receive when this type of drift is detected.

```json
{
   "Message" : "AWS Control Tower has detected that the registered organizational unit 'Security (ou-0123-1EXAMPLE)' has been deleted. For more information, including steps to resolve this issue, see 'https://docs.aws.amazon.com/console/controlltower/delete-ou'",
   "ManagementAccountId" : "012345678912",
   "OrganizationId" : "o-123EXAMPLE",
   "DriftType" : "ORGANIZATIONAL_UNIT_DELETED",
   "RemediationStep" : "Delete organizational unit in Control Tower",
   "OrganizationalUnitId" : "ou-0123-1EXAMPLE"
}
```

Resolution

Because this drift occurs for Foundational OUs only, the resolution is to update the landing zone. When other types of OUs are deleted, AWS Control Tower is updated automatically.

For more information about resolving drift for accounts and OUs, see If you manage resources outside of AWS Control Tower.

Security Hub control drift

This type of drift occurs when a control that's part of the AWS Security Hub Service-Managed Standard: AWS Control Tower reports a state of drift. The AWS Security Hub service itself does not report a state of drift for these controls. Instead, the service sends its findings to AWS Control Tower.

Security Hub control drift also can be detected if AWS Control Tower has not received a status update from Security Hub in more than 24 hours. If those findings are not received as expected, AWS Control Tower verifies that the control is in drift. The following example shows an Amazon SNS notification you may receive when this type of drift is detected.
Resolution

For OUs with fewer than 300 accounts, the resolution is to Re-register the OU, which resets the control to the original state. For any OU, you can remove and re-enable the control through the console or the AWS Control Tower APIs, which also resets the control.

For more information about resolving drift for accounts and OUs, see If you manage resources outside of AWS Control Tower.

Trusted access disabled

This type of drift applies to AWS Control Tower landing zones. It occurs when you disable trusted access to AWS Control Tower in AWS Organizations after you set up your AWS Control Tower landing zone.

When trusted access is disabled, AWS Control Tower no longer receives change events from AWS Organizations. AWS Control Tower relies on these change events to stay synchronized with AWS Organizations. As a result, AWS Control Tower may miss organizational changes in accounts and OUs. That is why it is important to re-register each OU, each time you update your landing zone.

Example: Amazon SNS notification
The following is an example of the Amazon SNS notification that you receive when this type of drift occurs.

```
{
    "Message" : "AWS Control Tower has detected that trusted access has been disabled in AWS Organizations. For more information, including steps to resolve this issue, see https://docs.aws.amazon.com/controltower/latest/userguide/drift.html#drift-trusted-access-disabled",
    "ManagementAccountId" : "012345678912",
    "OrganizationId" : "o-123EXAMPLE",
    "DriftType" : "TRUSTED_ACCESS_DISABLED",
    "RemediationStep" : "Repair Control Tower landing zone."
}
```

Resolution

AWS Control Tower notifies you when this type of drift occurs in the AWS Control Tower console. The resolution is to repair your AWS Control Tower landing zone. For more information, see Resolving drift.

If you manage resources outside of AWS Control Tower

AWS Control Tower sets up accounts, organizational units, and other resources on your behalf, but you are the owner of these resources. You can change these resources within AWS Control Tower or outside it. The most common place to change resources outside of AWS Control Tower is the AWS Organizations console. This topic describes how to reconcile changes to AWS Control Tower resources when you make the changes outside of AWS Control Tower.

Renaming, deleting, and moving resources outside of the AWS Control Tower console causes the console to become out of sync. Many changes can be reconciled automatically. Certain changes require a repair to your landing zone to update the information that's displayed in the AWS Control Tower console.

In general, changes that you make outside the AWS Control Tower console to AWS Control Tower resources create a state of repairable drift in your landing zone. For more information about these changes, see Repairable changes to resources.

Tasks that require landing zone repair

- Deleting the Security OU (A special case, not to be done lightly.)
• Removing a shared account from the Security OU \textit{(Not recommended.)}
• Updating, attaching, or detaching an SCP associated with the Security OU.

**Changes that are updated automatically by AWS Control Tower**

• Changing the email address of an enrolled account
• Renaming an enrolled account
• Creating a new top-level organizational unit (OU)
• Renaming a registered OU
• Deleting a registered OU \textit{(Except the Security OU, which requires an update.)}
• Deleting an enrolled account \textit{(Except a shared account in the Security OU.)}

\begin{itemize}
\item \textbf{Note}
\end{itemize}

AWS Service Catalog handles changes differently than AWS Control Tower. AWS Service Catalog may create a change in governance posture when it reconciles your changes. For more information about updating a provisioned product, see [Updating Provisioned Products](#) in the AWS Service Catalog documentation.

**Referring to resources outside of AWS Control Tower**

When you create new OUs and accounts outside of AWS Control Tower, they are not governed by AWS Control Tower, even though they may be displayed.

**Creating an OU**

Organizational Units (OUs) created outside of AWS Control Tower are referred to as \textit{Unregistered}. They are displayed in the \textbf{Organization} page, but they are not governed by AWS Control Tower controls.

**Creating an account**

Accounts created outside of AWS Control Tower are referred to as \textit{Unenrolled}. Enrolled and unenrolled accounts that belong to an OU that’s registered with AWS Control Tower are displayed in the \textbf{Organization} page. Accounts that do not belong to a registered OU can be invited by using the AWS Organizations console. This invitation to join does not enroll the account in AWS Control
Tower or extend AWS Control Tower governance to the account. To extend governance by enrolling the account, go to the Organization page or the Account detail page in AWS Control Tower and choose Enroll account.

**Externally changing AWS Control Tower resource names**

You can change the names of your organizational units (OUs) and accounts outside of the AWS Control Tower console, and the console updates automatically to reflect those changes.

**Renaming an OU**

In AWS Organizations, you can change the name of an OU by using either the AWS Organizations API or the console. When you change an OU name outside of AWS Control Tower, the AWS Control Tower console automatically reflects the name change. However, if you provision your accounts using AWS Service Catalog, you also must repair your landing zone to ensure that AWS Control Tower stays consistent with AWS Organizations. The Repair workflow ensures consistency across services for the Foundational and Additional OUs. You can repair this type of drift from the Landing zone settings page. See the section called “Resolving Drift” in Detect and resolve drift in AWS Control Tower.

AWS Control Tower displays the names of OUs on the Organization page in the AWS Control Tower dashboard. You can see when your landing zone repair has succeeded.

**Renaming an enrolled account**

Each AWS account has a display name that can be changed by the account's root user in the AWS Billing and Cost Management console. When you rename an account that's enrolled in AWS Control Tower, the name change is automatically reflected in AWS Control Tower. For more information about changing an account's name, see Managing an AWS account in the AWS Billing User Guide.

**Deleting the Security OU**

This type of drift is a special case. If you delete the Security OU, you will see an error message page, prompting you to repair your landing zone. You must repair your landing zone before you can take any other actions in AWS Control Tower.

- You will not be able to perform any actions in the AWS Control Tower console and you will not be able to create any new accounts in AWS Service Catalog until the repair is done.
- You won't be able to view the Landing zone settings page to see the Repair button there.
In this situation, the landing zone repair process creates a new Security OU and moves the two shared accounts into the new Security OU. AWS Control Tower marks the Log Archive and Audit accounts as drifted. The same process repairs the drift in these accounts.

**If you determine that you must delete the Security OU, here's what you need to know:**

Before you can delete the **Security** OU, you must make sure it contains no accounts. Specifically, you must remove the Log Archive and Audit accounts from the OU. We recommend that you move these accounts to another OU.

**Note**

The action of deleting your Security OU is not to be performed without due consideration. The action could create compliance concerns if logging is suspended temporarily, and because some controls might not be enforced.

For general information about drift, see "Resolving Drift" in Detect and resolve drift in AWS Control Tower.

**Removing an account from the Security OU**

We do not recommend that you remove any of the shared accounts from your organization or move them out of the **Security** OU. If you have removed a shared account accidentally, you can follow the remediation steps in this section to restore the account.

- **From within the AWS Control Tower console:** To start the remediation process, follow the semi-manual remediation steps. Ensure the user or role you use to access the AWS Control Tower console has permissions to run organizations:InviteAccountToOrganization. If you don't have such permissions, follow the manual remediation steps, which use both the AWS Control Tower console and the AWS Organizations console.

- **Starting from the AWS Organizations console:** This remediation process is a slightly longer, fully manual procedure. When following the manual remediation steps, you'll switch between the AWS Organizations console and the AWS Control Tower console. When working in AWS Organizations, you'll need a user or role with the AWSOrganizationsFullAccess managed policy or equivalent. When working in the AWS Control Tower console, you'll need a user or role with the AWSControlTowerServiceRolePolicy managed policy or equivalent, and permission to run all AWS Control Tower actions (controltower:*).
If the remediation steps don't restore the account, contact AWS Support.

The results of removing a shared account through AWS Organizations:

- The account is no longer protected by AWS Control Tower mandatory controls with service control policies (SCPs). **Result:** The resources created by AWS Control Tower in the account may be modified or deleted.
- The account is no longer under the AWS Organizations management account. **Result:** The administrator of the AWS Organizations management account no longer has visibility into the account's spending.
- The account is no longer guaranteed to be monitored by AWS Config. **Result:** The administrator of the AWS Organizations management account may not be able to detect resource changes.
- The account is no longer in the organization. **Result:** AWS Control Tower updates and repair will fail.

To restore a shared account using the AWS Control Tower console (semi-manual procedure)

1. Sign in to the AWS Control Tower console at [https://console.aws.amazon.com/controltower](https://console.aws.amazon.com/controltower). You must sign in as an IAM user, user in IAM Identity Center, or role with permissions to run organizations:InviteAccountToOrganization. If you don't have such permissions, use the manual remediation procedure described later in this topic.

2. On the Landing zone drift detected page, choose Re-Invite to remediate shared account removal by re-inviting the shared account into the organization. An automatically-generated email is sent to the email address for the account.

3. Accept the invitation to bring the shared account back into the organization. Do one of the following:

   - Sign in to the shared account that was removed, then go to [https://console.aws.amazon.com/organizations/home#/invites](https://console.aws.amazon.com/organizations/home#/invites)
   
   - If you have access to the email message sent when you re-invited the account, sign in to the removed account, then click the link in the message to navigate directly to the account invitation.

   - If the shared account that was removed is not in another organization, sign into the account, open the AWS Organizations console and navigate to Invitations.
4. Sign in to the management account again, or reload the AWS Control Tower console if it's already open. You'll see the Landing zone drift page. Choose Repair to repair the landing zone.

5. Wait for the repair process to complete.

If remediation is successful, the shared account appears in a normal state and compliance.

If the remediation steps don't restore the account, contact AWS Support.

**To restore a shared account using the AWS Control Tower and AWS Organizations consoles (Manual remediation)**

1. Sign in to the AWS Organizations console at https://console.aws.amazon.com/organizations/. You must sign in as an IAM user, user in IAM Identity Center, or role with the AWSOrganizationsFullAccess managed policy or equivalent.

2. Invite the shared account back to the organization. For information on the requirements, prerequisites, and procedure for inviting an account to AWS Organizations, see Inviting an AWS account to your organization in the AWS Organizations User Guide.

3. Sign in to the shared account that was removed, then go to https://console.aws.amazon.com/organizations/home#/invites to accept the invitation.

4. Sign in to the management account again.

5. Sign in to the AWS Control Tower console as a user or role with the AWSControlTowerServiceRolePolicy managed policy or equivalent, and permissions to run all AWS Control Tower actions (controltower:*).

6. You'll see the Landing zone drift page with an option to repair the landing zone. Choose Repair to repair the landing zone.

7. Wait for the repair process to complete.

If remediation is successful, the shared account appears in a normal state and compliance.

If the remediation steps don't restore the account, contact AWS Support.

**External changes that are updated automatically**

Changes that you make to your account email addresses are updated by AWS Control Tower automatically, but Account Factory does not update them automatically.
Changing the email address of a governed account

AWS Control Tower retrieves and displays email addresses as required by the console experience. Therefore, shared and other account email addresses are updated and shown consistently in AWS Control Tower after you change them.

Note

In AWS Service Catalog, the Account Factory displays the parameters that were specified in the console when you created a provisioned product. However, the original account email address is not updated automatically when the account email address changes. That's because the account is conceptually contained within the provisioned product; it is not the same as the provisioned product. To update this value, you must update the provisioned product, which may cause a change in governance posture.

Applying external AWS Config rules

AWS Control Tower displays the compliance status of all AWS Config rules deployed into organizational units registered with AWS Control Tower, including rules that were activated outside of the AWS Control Tower console.

Deleting AWS Control Tower resources outside AWS Control Tower

You can delete OUs and accounts in AWS Control Tower and you don't need to take any further action to see the updates. Account Factory is updated automatically when you delete an OU, but not when you delete an account.

Deleting a registered OU (except the Security OU)

Within AWS Organizations, you can remove empty organizational units (OUs) by using the API or the console. OUs that contain accounts cannot be deleted.

AWS Control Tower receives a notification from AWS Organizations when an OU is deleted. It updates the OU list in the Account Factory, so that the list of registered OUs remains consistent.

Note

In AWS Service Catalog, the Account Factory is updated to remove the deleted OU from the list of available OUs into which you can provision an account.
Deleting an enrolled account from an OU

When you delete an enrolled account, AWS Control Tower receives a notification and makes updates, so that the information remains consistent.

Note

In AWS Service Catalog, the Account Factory provisioned product that represents the governed account is not updated to delete the account. Instead, the provisioned product is displayed as TAINTED and in an error state. To clean up, go to AWS Service Catalog, choose the provisioned product, and then choose Terminate.
Govern organizations and accounts with AWS Control Tower

All organizational units (OUs) and accounts that you create in AWS Control Tower are governed automatically by AWS Control Tower. Also, if you have existing OUs and accounts that were created outside of AWS Control Tower, you can bring them into AWS Control Tower governance.

For existing AWS Organizations and AWS accounts, most customers prefer to enroll groups of accounts by registering the entire organizational unit (OU) that contains the accounts. You also can enroll accounts individually. For more information on enrolling individual accounts, see Enroll an existing AWS account.

Terminology

- When you bring an existing organization into AWS Control Tower, it's called registering the organization, or extending governance to the organization.

- When you bring an AWS account into AWS Control Tower, it's called enrolling the account.

View your OUs and accounts

On the AWS Control Tower Organization page, you can view all the OUs in your AWS Organizations, including OUs that are registered with AWS Control Tower and those that are not registered. You can view nested OUs as part of the hierarchy. An easy way to view your organizational units on the Organization page is to select Organizational units only from the dropdown at the upper right.

The Organization page lists all accounts in your organization, regardless of OU or enrollment status in AWS Control Tower. An easy way to view your accounts on the Organization page is to select Accounts only from the dropdown at the upper right. You can view, update, and enroll accounts individually within the OUs, if the accounts meet the prerequisites for enrollment.

If you do not select any filtering, the Organization page displays your accounts and OUs in a hierarchy. It is a central location for monitoring and taking actions on all of your AWS Control Tower resources. For more information about the Organization page, you can view the video walkthrough.
Video Walkthrough

This video (4:01) describes how to work with the **Organization** page in AWS Control Tower. For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.

**Video Walkthrough of Working with the Organization Page in AWS Control Tower.**

**Topics**

- Register an existing organizational unit with AWS Control Tower
- Enroll an existing AWS account

**Extend governance to an existing organization**

You can add AWS Control Tower governance to an existing organization by setting up a landing zone (LZ) as outlined in the AWS Control Tower User Guide at [Getting Started, Step 2](#).

Here's what to expect when you set up your AWS Control Tower landing zone in an existing organization.

- You can have one landing zone per AWS Organizations organization.
- AWS Control Tower uses the management account from your existing AWS Organizations organization as its management account. No new management account is needed.
- AWS Control Tower sets up two new accounts in a registered OU: an audit account and a logging account.
- Your organization's service limits must allow for the creation of these two additional accounts.
- After you've launched your landing zone or registered an OU, AWS Control Tower controls apply automatically to all enrolled accounts in that OU.
- You can **Enroll** additional existing AWS accounts into an OU that's governed by AWS Control Tower, so that controls apply to those accounts.
- You can add more OUs in AWS Control Tower and you can **Register** existing OUs.

To check other prerequisites for registration and enrollment, see [Getting Started with AWS Control Tower](#).
Here's more detail about how AWS Control Tower controls do not apply to your OUs in AWS organizations that don't have AWS Control Tower landing zones set up:

- New accounts created outside of AWS Control Tower Account Factory are not bound by the registered OU’s controls.
- New accounts created in OUs that are not registered with AWS Control Tower are not bound by controls, unless you specifically Enroll those accounts into AWS Control Tower. See Enroll an existing AWS account for more information about enrolling accounts.
- Additional existing organizations, existing accounts, and any new OUs or any accounts that you create outside of AWS Control Tower, are not bound by AWS Control Tower controls, unless you separately register the OU or enroll the account.

For more information about how to apply AWS Control Tower to existing OUs and accounts, see Register an existing organizational unit with AWS Control Tower.

For an overview of the process of setting up an AWS Control Tower landing zone in your existing organization, see the video in the next section.

### Note

During set up, AWS Control Tower performs pre-checks to avoid common issues. However, if you are currently using the AWS Landing Zone solution for AWS Organizations, check with your AWS solutions architect before you try to enable AWS Control Tower in your organization to determine if AWS Control Tower may interfere with your current landing zone deployment. Also, see What if the account does not meet the prerequisites? for information about moving accounts from one landing zone to another.

### Video: Enable a Landing Zone in existing AWS Organizations

This video (7:48), describes how to set up and enable an AWS Control Tower landing zone in existing AWS Organizations structures. For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.

Enable AWS Control Tower for existing organizations
Considerations for IAM Identity Center and existing organizations

- If AWS IAM Identity Center (IAM Identity Center) is already set up, the AWS Control Tower home Region must be the same as the IAM Identity Center Region.
- AWS Control Tower does not delete an existing configuration.
- If IAM Identity Center is already enabled, and if you are using IAM Identity Center Directory, AWS Control Tower adds resources such as permission sets, groups, and so forth, and proceeds as usual.
- If another directory (external, AD, Managed AD) is set up, AWS Control Tower does not change the existing configuration. For more details, see Considerations for AWS IAM Identity Center (IAM Identity Center) customers.

Access to other AWS services

After you bring your organization into AWS Control Tower governance, you still have access to any AWS services that are available through AWS Organizations, by means of the AWS Organizations console and APIs. For more information, see Related AWS services.

Nested OUs in AWS Control Tower

This chapter lists the expectations and considerations you'll want to be aware of when working with nested OUs in AWS Control Tower. In most ways, working with nested OUs is the same as working with a flat OU structure. The Register and Re-register features work with nested OUs, except for the changed behaviors that are noted in this chapter.

Video Walkthrough

This video (4:46) describes how to manage nested OU deployments in AWS Control Tower. For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.

Video Walkthrough of Managing Nested OUs in AWS Control Tower.

For guidance regarding best practices for nested OUs and your landing zone, see the blog post Organizing your AWS Control Tower landing zone with nested OUs.
Expand from flat OU structure to nested OU structure

If you created your AWS Control Tower landing zone with a flat OU structure, you can expand it to a nested OU structure.

This process has four main steps:

1. Create your desired nested OU structure in AWS Control Tower.
2. Go to the AWS Organizations console and use their bulk move feature to move the accounts from the source OU (flat) into the destination OU (nested). Here’s how:
   a. Go to the OU from which you want to move accounts.
   b. Select all the accounts in the OU.
   c. Choose Move.

   ![Note]
   
   This step must be done in the in AWS Organizations console because AWS Control Tower doesn’t have a Move feature.

3. Go to the nested OU in AWS Control Tower and Register or Re-register it. All of the accounts in the nested OU will be enrolled.
   - If you created the OU in AWS Control Tower, Re-register the OU.
   - If you created the OU in AWS Organizations, Register the OU for the first time.

4. After your accounts are moved and enrolled, delete the empty top-level OU, either from the AWS Organizations console or from the AWS Control Tower console.

Nested OU registration pre-checks

To support successful registration of your nested OUs and their member accounts, AWS Control Tower performs a series of pre-checks. These same prechecks are performed when registering any top-level OU or nested OU. For more information, see Common causes of failure during registration or re-registration.

- If all pre-checks pass, AWS Control Tower begins registering your OU, automatically.
- If any pre-checks fail, AWS Control Tower stops the registration process and provides you with a list of items that must be fixed before you can register your OU.
Nested OUs and roles

AWS Control Tower deploys the AWSControlTowerExecution role to accounts under the target OU, and to accounts in all OUs nested under the target OU, even when your intention is to register the target OU only. This role gives any user of the management account Administrator permissions on any account that has the AWSControlTowerExecution role. The role can be used to perform actions that normally would be disallowed by AWS Control Tower controls.

You can delete this role from unenrolled accounts that you don't plan to enroll. If you delete this role, you cannot enroll the account with AWS Control Tower, or register the immediate parent OUs, unless you restore the role to the account. To delete the AWSControlTowerExecution role from an account, you must be signed in under the AWSControlTowerExecution role, because no other IAM principals are allowed to delete roles managed by AWS Control Tower.

For information about how to restrict role access, see Optional conditions for your role trust relationships.

What happens during registration and re-registration of nested OUs and accounts

When you register or re-register a nested OU, AWS Control Tower enrolls all unenrolled accounts of the target OU, and it updates all enrolled accounts. Here's what to expect.

AWS Control Tower performs the following tasks

- Adds the AWSControlTowerExecution role to all unenrolled accounts under this OU, and to all unenrolled accounts in its nested OUs.
- Enrolls member accounts that are not enrolled.
- Re-enrolls enrolled member accounts.
- Creates an IAM Identity Center login for newly enrolled member accounts.
- Updates existing enrolled member accounts to reflect your landing zone changes.
- Updates controls that are configured for this OU and its member accounts.

Considerations for nested OU registration

- You cannot register an OU under the core OU (Security OU).
- Nested OUs must be registered separately.
• You cannot register an OU unless its parent OU is registered.
• You cannot register an OU unless all OUs higher in the tree have been registered successfully at some time (some may have been deleted).
• You can register an OU that is under a drifted higher OU, but the drift is not repaired by that action.

**Nested OU limitations**

• OUs may be nested a maximum of 5 levels deep under the root.
• Nested OUs under the target OU must be registered or re-registered separately.
• If the target OU is at Level 2 or below in the hierarchy, that is, if it is not a top-level OU, preventive controls enabled on higher OUs are enforced on this OU and all OUs below it, automatically.
• OU registration failures do not propagate up the hierarchy tree. You can see details about the states of nested OUs on the parent's OU details page.
• OU registration failures do not propagate down the hierarchy tree.
• AWS Control Tower does not modify your VPC settings for any new or existing accounts.

**Nested OUs and compliance**

From the AWS Control Tower console, you can view OUs and accounts that are non-compliant in the **Organization** page, so you can understand compliance at a larger scale.

**Considerations about compliance for nested OUs and accounts**

• An OU's compliance is not determined based on the compliance of the OUs nested under it.
• A control's compliance status is computed over all OUs on which the control is enabled, including nested OUs. See [AWS Control Tower compliance status for controls, OUs, and accounts](#).
• An OU is shown as noncompliant only if it has accounts that are noncompliant, regardless of where the OU sits in the OU hierarchy.
• If a nested OU is noncompliant, its parent OU is not automatically considered to be noncompliant.
• On the **OU detail** or **Account detail** page, you can view a list of noncompliant resources that may be causing your OUs or accounts to show a non-compliant status.
Nested OUs and drift

In certain situations, drift can prevent the registration of nested OUs.

Expectations for drift and nested OUs

- You can enable controls on OUs with drifted parents, but not on drifted OUs directly.
- You are allowed to enable detective controls under a drifted OU, as long as it's not a top-level drifted OU.
- Mandatory controls are enabled on top-level OUs only. Mandatory controls are skipped when you register a nested OU.
- One mandatory control protects AWS Config resources; therefore, that control must be in a non-drifted state to register nested OUs. If drifted, AWS Control Tower blocks registration of nested OUs.
- If the top-level OU is in drift, the control that protects AWS Config resources may be in drift. In this situation, AWS Control Tower blocks any action that requires creation or update of AWS Config resources, including application of detective controls.

Nested OUs and controls

When you enable a control on a registered OU, preventive and detective controls have different behaviors. For nested OUs, proactive controls behave similarly to detective controls.

Preventive controls

- Preventive controls are enforced on nested OUs.
- Mandatory preventive controls are enforced on all accounts under the OU and its nested OUs.
- Preventive controls affect all accounts and OUs nested under the target OU, even if those accounts and OUs are not registered.

Detective and proactive controls

- Nested OUs do not inherit detective or proactive controls automatically; these must be enabled separately.
- Detective and proactive controls are deployed only to registered accounts in your landing zone's operating Regions.
Enabled control states and inheritance

You can view inherited controls for each OU, on the **OU details** page.

**Tip**

You can make use of control inheritance to help stay within an OU's SCP quota. For example, you can enable a control at the top-level OU of an OU hierarchy, instead of enabling directly for a nested OU.

**Inherited status**

- The status **Inherited** indicates that the control is enabled by inheritance only, and it has not been applied directly to the OU.
- The status **Enabled** means the control is enforced on this OU, regardless of its state on other OUs.
- The status **Failed** means the control is not enforced on this OU, regardless of its state on other OUs.

**Note**

The status **Inherited** indicates that the control was applied to an OU higher in the tree, and it is enforced on this OU, but it was not added directly to this OU.

**If your landing zone is not the current version**

Each row in the **Enabled controls** table represents one enabled control on one, individual OU.

**Nested OUs and the root**

The root is not an OU, and it cannot be registered or re-registered. You also can't create accounts directly in the root. The root cannot be noncompliant or have a lifecycle state, such as *registered* or *in drift*.
However, the root is the top-level container for all accounts and OUs. In the context of nested OUs, it is the node under which all other OUs are nested.

**Register an existing organizational unit with AWS Control Tower**

An efficient way to bring multiple, existing AWS accounts into AWS Control Tower is to extend governance by AWS Control Tower to an entire organizational unit (OU).

To enable AWS Control Tower governance over an existing OU that was created with AWS Organizations, and its accounts, register the OU with your AWS Control Tower landing zone. You can register OUs that contain up to 300 accounts. If an OU contains more than 300 accounts, you cannot register it in AWS Control Tower.

When you register an OU, its member accounts are enrolled into the AWS Control Tower landing zone. They are governed by the controls that apply to their OU.

### Note

If you don't already have an AWS Control Tower landing zone, start by setting up a landing zone, either in a new organization created by AWS Control Tower, or in an existing AWS Organizations organization. For more details about how to set up a landing zone, see [Getting started with AWS Control Tower](#).

**What happens to my accounts when I register my OU?**

AWS Control Tower requires permission to establish trusted access between AWS CloudFormation and AWS Organizations on your behalf, so that AWS CloudFormation can deploy your stack to the accounts in your organization automatically.

- The AWSControlTowerExecution role is added to all accounts with status **Not enrolled**.
- Mandatory controls are enabled by default to your OU and all its accounts when you register your OU.

**Partial enrollment of accounts after an OU is registered**
It's possible to register an OU successfully, yet certain accounts may remain unenrolled. If so, these accounts do not meet some of the prerequisites for enrollment. If an account enrollment as part of the **Register OU** process does not succeed, the account status on the accounts page shows **Enrollment failed**. You may also see account information on your OU page such as **4 of 5**, in the accounts field.

For example, if you see **4 of 5**, it means that your OU has 5 accounts in total, and 4 of them enrolled successfully, but one account failed to enroll during the **Register OU** process. You can choose **Re-Register OU** to bring accounts into enrollment, after you make sure the accounts meet the enrollment prerequisites.

**IAM user prerequisites for registering an OU**

Your AWS Identity and Access Management (IAM) identity (user or role) or IAM Identity Center user identity must be included on the appropriate Account Factory portfolio when you perform the **Register OU** operation, even if you already have **Admin** permissions. Otherwise, the creation of the provisioned products will fail during registration. Failure occurs because AWS Control Tower relies upon the credentials of the IAM user or IAM Identity Center user identity when registering an OU.

The relevant portfolio is one created by AWS Control Tower, called **AWS Control Tower Account Factory Portfolio**. Navigate to it by choosing **Service Catalog > Account Factory > AWS Control Tower Account Factory Portfolio**. Then select the tab called **Groups, roles, and users** to view your IAM or IAM Identity Center identity. For more information on how to grant access, see the documentation for **AWS Service Catalog**.

**Register an existing OU**

In the AWS Control Tower console, on the **Organization** page, you can view all of your organization's OUs and accounts in a hierarchy, including OUs that are registered with AWS Control Tower, and those that are not registered.

In general, unregistered OUs were created in AWS Organizations, and they are not governed by any other landing zone. You can register existing OUs that contain up to 300 accounts. If an OU contains more than 300 accounts, you cannot register it in AWS Control Tower.

**To register an existing OU**

2. In the left-pane navigation menu, choose **Organization**.
3. On the **Organization** page, select the radio button next to the OU you want to register, then select **Register organizational unit** from the **Actions** dropdown menu at the upper right, or alternatively, select the name of the OU so you can view the **OU details** page for that OU.

4. On the **OU details** page, at the upper right you can select **Register OU** from the **Actions** dropdown menu.

The registration process takes a minimum of 10 minutes to extend governance to the OU, and up to 2 additional minutes for each additional account.

### Results of registering an existing OU

After you register an existing OU, the `AWSControlTowerExecution` role allows AWS Control Tower to extend governance to its individual accounts. Guardrails are enforced, and information about account activities is reported to your audit and logging accounts.

Other results include the following:

- `AWSControlTowerExecution` allows auditing by the AWS Control Tower audit account.
- `AWSControlTowerExecution` helps you configure your organization’s logging, so that all the logs for every account are sent to the logging account.
- `AWSControlTowerExecution` ensures that your selected AWS Control Tower controls apply automatically to every individual account in your OUs, as well as to every new account you create in AWS Control Tower.

For a registered OU, you can provide compliance and security reports based on the auditing and logging features embodied by AWS Control Tower controls. Your security and compliance teams can verify that all requirements are met, and that no organizational drift has occurred. For more information about drift, see [Detect and resolve drift in AWS Control Tower](#).

---

**Note**

One unusual situation can occur when AWS Control Tower displays OUs and their accounts. If you have created an account in a registered OU and then you subsequently move that enrolled account into another OU that’s not registered, particularly if you use AWS Organizations to move the account, you can see a result “1 of 0” accounts in your OU details page. Furthermore, you may have created another unenrolled account in that unregistered OU. If there’s an unregistered account, the console may read “1 of 1” for the
OU. It will seem that the single (newly created) account is enrolled, but in fact it is not. You must enroll the new account.

Create a new OU

To create a new OU in AWS Control Tower

1. Navigate to the Organization page.
2. Select Create organizational unit from the Create resources dropdown menu in the upper right.
3. Specify a name in the OU name field.
4. In the Parent OU dropdown, you can see the hierarchy of registered OUs. Select a parent OU for the new OU you’re creating.
5. Choose Add.

Tip
To add a nested OU in fewer steps, select the name of the parent OU shown in the table on the Organization page, view the OU page for that parent OU, and then choose Add an OU from the Actions dropdown menu in the upper right. The new OU is created as a nested OU under your selected OU, automatically.

Note
If your landing zone is not up to date, you will see a flat list instead of a hierarchy in the dropdown menu. Even if your landing zone includes nested OUs, you will not see L5 OU’s in the dropdown, because you cannot create a new OU beneath a L5 OU. For more information about nested OUs in AWS Control Tower, see Nested OUs in AWS Control Tower.
Common causes of failure during registration or re-registration

If registration (or re-registration) of an OU or any of its member accounts fails, you can download a file containing a detailed report that shows which pre-checks did not pass. You can complete the download by choosing the Download button, which appears at the upper right of the registration area.

This section lists the types of errors you may receive if pre-checks fail, and how to correct the errors.

In general, when you register or re-register an OU, all accounts within that OU are enrolled in AWS Control Tower. However, it is possible that some accounts may fail to enroll, even if the OU as a whole is registered successfully. In these cases, you must resolve the pre-check failure related to the account and then try re-enrolling that account or OU.

Landing Zone error

- Landing zone not ready

  Repair your current landing zone, or update it to the latest version.

OU errors

- Exceeds maximum number of SCPs

  You may be over the limit for service control policies (SCPs) per OU, or you may have reached another quota. A limit of 5 SCPs per OU applies to all OUs in your AWS Control Tower landing zone. If you have more SCPs than the quota allows, you must delete or combine the SCPs.

- Conflicting SCPs

  Existing SCPs may be applied to the OU or account, which prevent AWS Control Tower from enrolling the account. Check the applied SCPs for any policy that may prevent AWS Control Tower from working. Be sure to check the SCPs that are inherited from OUs higher in the hierarchy.

- Exceeds stack set quota

  The stack set quota may have been exceeded. If you have more instances than the quota allows, you must delete some stack instances. For more information, see AWS CloudFormation quotas in the AWS CloudFormation User Guide.
• **Exceeds account limit**

AWS Control Tower limits each OU to 300 accounts during registration.

**Account errors**

• **Pre-checks prevented on accounts**

An existing SCP on the OU prevents AWS Control Tower from conducting pre-checks on your OU member accounts. To resolve this pre-check failure, update or remove the SCP from the OU.

• **Email address error**

The email address you specified for the account does not conform to the naming standards. Here is the regular expression (regex) that specifies which characters are allowed: [A-Z0-9a-z._%+-]+@[A-Za-z0-9.-]+[.@]+[A-Za-z]+

• **Config recorder or delivery channel enabled**

The account may have an existing AWS Config configuration recorder or delivery channel. These must be deleted or modified through the AWS CLI in all AWS Regions where the AWS Control Tower management account has governed resources, before you can enroll an account.

• **STS disabled**

AWS Security Token Service (AWS STS) may be disabled in the account. AWS STS endpoints must be activated in the accounts for all Regions supported by AWS Control Tower.

• **IAM Identity Center conflict**

The AWS Control Tower home Region is not the same as the AWS IAM Identity Center (IAM Identity Center) Region. If IAM Identity Center is already set up, the AWS Control Tower home region must be the same as the IAM Identity Center Region.

• **Conflicting SNS topic**

The account has an Amazon Simple Notification Service (Amazon SNS) topic name that AWS Control Tower needs to use. AWS Control Tower creates resources (such as SNS topics) with specific names. If these names are already taken, AWS Control Tower setup fails. This situation could occur if you are reusing an account previously enrolled in AWS Control Tower.

• **Suspended account detected**
This account has been suspended. It cannot be enrolled into AWS Control Tower. Remove the account from this OU, and try again.

- **IAM user not in portfolio**

Add the AWS Identity and Access Management (IAM) user to the Service Catalog portfolio before registering your OU. This error pertains to the management account only.

- **Account does not meet prerequisites**

The account doesn’t meet prerequisites for account enrollment. For example, the account may be missing roles and permissions required to enroll it in AWS Control Tower. Instructions for adding a role are available in [Manually add the required IAM role to an existing AWS account and enroll it](#).

As a reminder, AWS CloudTrail is auto-enabled on all of your AWS accounts when you enroll them in AWS Control Tower. If CloudTrail is enabled on an account previous to enrollment, you could experience double-billing unless you deactivate CloudTrail before you begin the enrollment process.

**Update organizations**

The quickest way to update an organizational unit (OU) or to update multiple accounts within an OU is to **Re-register** the OU.

**When to update AWS Control Tower OUs and accounts**

When you perform a landing zone update, you must update your enrolled accounts to apply new controls to those accounts.

- You can perform an update to all accounts under an OU using the **Re-Register** option.
- If you have more than one registered OU in your landing zone, re-register all of your OUs to update all of your accounts.
- To update a single account, you can update from the AWS Control Tower console, or you can select the **Update provisioned product** option in AWS Service Catalog. See [Update the account in the console](#).
Update multiple accounts in the same OU

To update multiple accounts in one OU, with one action

2. In the left-pane navigation menu, choose **Organization**.
3. On the **Organization** page, choose any OU to view the **OU details** page.
4. Under **Actions** in the upper right, select **Re-Register OU**.

Repeat these steps for each OU in your AWS Control Tower organization, if you need to update all of your accounts and OUs.

Alternatively, you can select any account that shows a status of **Update available** and then choose **Update account** for as many accounts as needed.

What happens during re-registration

When you re-register an OU:

- The **State** field indicates whether the account currently is enrolled with AWS Control Tower (**Enrolled**), whether the account has never been enrolled (**Not enrolled**), or whether enrollment failed previously (**Enrollment failed**).
- When you re-register the OU, the **AWSControlTowerExecution** role is added to all accounts with status **Not enrolled** or **Enrollment failed**.
- AWS Control Tower creates a single sign-on (IAM Identity Center) login for those new enrolled accounts.
- **Enrolled** accounts are re-enrolled into AWS Control Tower.
- Drift on any preventive controls applied to the OU is fixed, because the SCPs are returned to their default definitions.
- All accounts are updated to reflect the latest landing zone changes.

For more information, see [Enroll an existing AWS account](#).
Tip

When you re-register an OU, or when you're updating your landing zone version and multiple member accounts, you may see a failure message mentioning the StackSet-AWSControlTowerExecutionRole. This StackSet in the management account can fail because the AWSControlTowerExecution IAM role already exists in all enrolled member accounts. This error message is expected behavior, and it can be disregarded.

Update a single account

You can update individual AWS Control Tower accounts in the AWS Control Tower console, or in the Service Catalog console.

To update a single account in the AWS Control Tower console, see Update the account in the console.

To update a single account in AWS Service Catalog

1. Go to AWS Service Catalog.
2. In the left-pane navigation menu, choose Provisioned products.
3. On the Provisioned products page, select the radio button next to the provisioned product you want to update.
4. In the upper right, choose the Actions dropdown to Update.

To learn more about updating in AWS Service Catalog, see Update the provisioned product and Updating products in the Service Catalog Administrator Guide.
About controls in AWS Control Tower

A control is a high-level rule that provides ongoing governance for your overall AWS environment. It's expressed in plain language. AWS Control Tower implements preventive, detective, and proactive controls that help you govern your resources and monitor compliance across groups of AWS accounts.

A control applies to an entire organizational unit (OU), and every AWS account within the OU is affected by the control. Therefore, when users perform work in any AWS account in your landing zone, they're always subject to the controls that are governing their account's OU.

Note

We are transitioning our terminology to align better with industry usage and with other AWS services. During this time, you may see the previous term, guardrail, as well as the new term, control, in our documentation, console, blogs, and videos. These terms are synonymous for our purposes.

The purpose of controls

Controls assist you to express your policy intentions. For example, if you enable the detective control Detect Whether Public Read Access to Amazon S3 Buckets is Allowed on an OU, you can determine whether an entity (such as a user) would be permitted to have read access over the internet to any Amazon S3 buckets, for any accounts under that OU.

Control behavior and guidance

Controls are categorized according to their behavior and their guidance.

The behavior of each control is one of preventive, detective, or proactive. Control guidance refers to the recommended practice for how to apply each control to your OUs. The guidance of a control is independent of whether its behavior is preventive, detective, or proactive.
Control behavior

- **Preventive** – A preventive control ensures that your accounts maintain compliance, because it disallows actions that lead to policy violations. The status of a preventive control is either **enforced** or **not enabled**. Preventive controls are supported in all AWS Regions.

- **Detective** – A detective control detects noncompliance of resources within your accounts, such as policy violations, and provides alerts through the dashboard. The status of a detective control is either **clear**, **in violation**, or **not enabled**. Detective controls apply only in those AWS Regions supported by AWS Control Tower.

- **Proactive** – A proactive control scans your resources before they are provisioned, and makes sure that the resources are compliant with that control. Resources that are not compliant will not be provisioned. Proactive controls are implemented by means of AWS CloudFormation hooks, and they apply to resources that would be provisioned by AWS CloudFormation. The status of a proactive control is PASS, FAIL, or SKIP. For more information about AWS CloudFormation hooks, see Characteristics of hooks in the AWS CloudFormation documentation.

Implementation of control behavior

- The preventive controls are implemented using Service Control Policies (SCPs), which are part of AWS Organizations.

- The detective controls are implemented using AWS Config rules.

- The proactive controls are implemented using AWS CloudFormation hooks.

- Certain mandatory controls are implemented by means of a single SCP that performs multiple actions, rather than as unique SCPs. Therefore, the same SCP is shown in the control reference, under each mandatory control to which that SCP applies.

- The integrated, detective Security Hub controls are implemented using AWS Config rules, similarly to all Security Hub controls. These controls are owned by the **Service-Managed Standard: AWS Control Tower**, which is part of Security Hub.

Control guidance

AWS Control Tower provides three categories of guidance: **mandatory**, **strongly recommended**, and **elective** controls.

- Mandatory controls are always enforced in your landing zone. You cannot turn them off for any OU.
• Strongly recommended controls are designed to enforce some common best practices for well-architected, multi-account environments. These controls apply at the OU level, for all accounts in that OU.

• Elective controls enable you to track or lock down actions that are commonly restricted in an AWS enterprise environment. These controls apply at the OU level, for all accounts in that OU.

**Defaults:** When you create a new landing zone, AWS Control Tower enables all mandatory controls by default and applies them to your top-level OUs. When you extend governance to an OU, AWS Control Tower applies mandatory controls to the OU by default. Strongly recommended and elective controls are not enabled by default.

**Considerations for controls and OUs**

When working with controls and OUs, consider the following properties:

**Controls, landing zones, and OUs**

• After you create your landing zone, all resources in your landing zone are subject to controls. For example, certain controls apply to Amazon S3 buckets.

• OUs created through AWS Control Tower have mandatory controls applied to them automatically. Optional controls are applied at the discretion of administrators.

• OUs created outside of an AWS Control Tower landing zone (such as, *unregistered OUs created in AWS Organizations*) are displayed in the AWS Control Tower console, but AWS Control Tower controls do not apply to those OUs, unless they become registered OUs.

• Regarding nested OUs, preventive controls enabled on any OUs higher in the tree will apply to unregistered OUs in that tree.

• When you enable controls on an organizational unit (OU) that is registered with AWS Control Tower, preventive controls apply to all member accounts under the OU, enrolled and unenrolled. Detective controls apply to enrolled accounts only.

For more information about how controls are applied to nested OUs, in AWS Control Tower, see [Nested OUs and controls](#).
Exception to controls for the management account

The root user and any administrators in the management account can perform work that controls would otherwise deny. This exception is intentional. It prevents the management account from entering into an unusable state. All actions taken within the management account continue to be tracked in the logs contained within the log archive account, for purposes of accountability and auditing.

Considerations for controls and accounts

When working with controls and accounts, consider the following properties:

Controls and accounts

- Accounts created through the Account Factory in AWS Control Tower inherit the controls of the parent OU, and the associated resources are created.
- Accounts created outside of an AWS Control Tower landing zone do not inherit AWS Control Tower controls. These are called *unenrolled* accounts.
- Accounts created outside of AWS Control Tower won't inherit controls in AWS Control Tower until you enroll them. However, these unenrolled accounts *are* displayed in AWS Control Tower.

Accounts inherit controls from an OU upon enrollment in that OU.

- An OU can contain enrolled or unenrolled *member accounts*.
- Controls do not apply to an unenrolled account unless it becomes a member account of a registered AWS Control Tower OU. In that case, preventive controls for the OU will apply to the unenrolled account. Detective controls will not apply.
- When you enable optional controls, AWS Control Tower creates and manages certain additional AWS resources in your accounts. Do not modify or delete resources created by AWS Control Tower. Doing so could result in the controls entering an unknown state. For more information, see [The AWS Control Tower controls library](#).
- When you move an account from one OU to another, the controls from the previous OU are not removed. If you enable any new hook-based control on the destination OU, the old hook-based control is removed from the account, and the new control replaces it. Controls implemented with SCPs and AWS Config rules always must be removed manually when an account changes OUs.
View control details

To view details about an individual control in the console, select the name of the control from the table on the Controls page.

To view more details about an individual control in the AWS Control Tower User Guide, see Tables of control metadata. For each control, the API controlIdentifier for each Region is available, along with the framework and objective. Certain additional information is available only in the console, as described in the next sections.

In each Control details page of the console, you can find the following details for each control:

- **Name** – The name of the control.
- **Control objective** – The pre-defined objective that this control helps you enforce. See the List of control objectives.
- **Service** – The AWS service to which this control applies.
- **Control owner** – The AWS service that owns and maintains this control.
- **Behavior** – A control's behavior is set to preventive, detective, or proactive.
- **Implementation** – The underlying implementation method for this control, such as SCP, AWS Config managed rule, or AWS CloudFormation hook.
- **Resource** – The AWS resource that is monitored or affected by this control.
- **Framework** – The industry-standard compliance framework that this control helps to enforce, for example, NIST 800-53 Rev 5.
- **Control ID** – A unique identifier assigned to each control. This identifier is part of a classification system for the controls.
- **API controlIdentifier** – This identifier is needed when calling the AWS Control Tower APIs.
- **Guidance** – The guidance is either mandatory, strongly recommended, or elective.
- **Severity** – The relative risk associated with any violation of this control.
- **Release date** – The date the control became available.

The status of the Region deny control is shown as a separate entry.

Other information may appear on the Control details page, including these:

- **Description** – A brief description of the control and its function.
• Remediation message – Suggestions for what to change if your AWS CloudFormation hook control returns a FAIL status.

• Remediation samples – Examples showing configurations that can return a PASS or FAIL result for your AWS CloudFormation hook control.

• Usage considerations – Additional information about how to apply this control or about the resources it can affect.

• The Gherkin artifact – The Gherkin is a readable specification for the AWS CloudFormation hook controls, showing requirements for tests that cause PASS, FAIL, or SKIP results to be returned.

To view a control artifact

Each control is implemented by one or more artifacts. These artifacts can include a baseline AWS CloudFormation template, a service control policy (SCP) to prevent account-level configuration changes or activity that may create configuration drift, and AWS Config Rules to detect account-level policy violations.

To view a control's artifact, select the Artifact tab to view the Service control policy (SCP), AWS Config rule, or AWS CloudFormation policy template on the Control details page.

List of control objectives

Each control enforces one of these objectives. Sometimes controls must be applied in a group so that the control objective is enforced. Information about related controls is viewable in the AWS Control Tower console, on the Control details page.

Control objectives

For more information about controls and their associated control objectives, see Tables of control metadata.

• CO.1 Establish logging and monitoring
• CO.2 Encrypt data at rest
• CO.3 Encrypt data in transit
• CO.4 Protect data integrity
• CO.5 Enforce least privilege
• CO.6 Limit network access
Resource identifiers for APIs and controls

Each control in AWS Control Tower has a unique identifier for use with the control APIs. A different identifier is given for each Region in which AWS Control Tower operates. The identifier for each control is shown in the API controlIdentifier field, on the Control details page in the AWS Control Tower console, and in the Tables of control metadata.

Note
This identifier is distinct from the ControlID field, which is a classification system for controls.

View the control identifiers for all controls

To view the tables of control metadata, including the controlIdentifier ARN for each control and Region, see Tables of control metadata. The tables also include the identifiers for Security Hub controls that are part of the AWS Security Hub Service-Managed Standard:AWS Control Tower.

View control identifiers in the console

To view the control identifiers and other details about AWS Control Tower controls in the console, navigate to the Control details page in the AWS Control Tower console. You can find the identifier in the API controlIdentifier field.
Example forms of Identifiers

When you look in the AWS Control Tower console, here are examples of identifiers you may see.

- Security Hub example **API controlIdentifier**: `arn:aws:controltower:us-east-1::control/OOTDCUSIKIZZ`
- Legacy control example **API controlIdentifier**: `arn:aws:controltower:us-east-1::control/AWS-GR_LOG_GROUP_POLICY`
- Proactive control example **API controlIdentifier**: `arn:aws:controltower:us-east-1::control/EHSOKSSMVFWF`

Older controls (legacy controls) include the name of the control in the ARN, but newer controls have a different identifier, and that is expected.

Old example: `arn:aws:controltower:us-east-1::control/AWS-GR_CLOUDTRAIL_CHANGE_PROHIBITED`
New example: `arn:aws:controltower:us-east-1::control/WTDSMKDKDNLE`

The following list contains the API controlIdentifier designations of the (legacy) **Strongly recommended** and **Elective**, preventive and detective, controls that are owned by AWS Control Tower, including the elective **Data residency** controls. Mandatory controls cannot be deactivated by the control APIs.

Each item in the list that follows serves as a link, which provides more information about these individual (legacy) controls that are owned by AWS Control Tower, as given in [The AWS Control Tower controls library](https://aws.amazon.com/documentation/ct/controls-library/).

**Designations for legacy Elective controls**

- `arn:aws:controltower:REGION::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED`
- `arn:aws:controltower:REGION::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED`
- `arn:aws:controltower:REGION::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED`
- `arn:aws:controltower:REGION::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY`
- `arn:aws:controltower:REGION::control/AWS-GR_IAM_USER_MFA_ENABLED`
Designations for legacy Data residency controls (elective)

- arn:aws:controltower:REGION::control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED
- arn:aws:controltower:REGION::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED
- arn:aws:controltower:REGION::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING
- arn:aws:controltower:REGION::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS
- arn:aws:controltower:REGION::control/AWS-GR_DISALLOW_VPN_CONNECTIONS
- arn:aws:controltower:REGION::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC
- arn:aws:controltower:REGION::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK
- arn:aws:controltower:REGION::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP
- arn:aws:controltower:REGION::control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS
- arn:aws:controltower:REGION::control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY
- arn:aws:controltower:REGION::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP
- arn:aws:controltower:REGION::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED
- arn:aws:controltower:REGION::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW
- arn:aws:controltower:REGION::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK
- arn:aws:controltower:REGION::control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC
- arn:aws:controltower:REGION::control/AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS
- arn:aws:controltower:REGION::control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC

Designations for legacy Strongly recommended controls

- arn:aws:controltower:REGION::control/AWS-GR_ENCRYPTED_VOLUMES
The following controls cannot be activated or deactivated by means of the AWS Control Tower APIs. Except for the Region deny control, all of these are mandatory controls. In general, mandatory controls cannot be deactivated. The Region deny control must be changed in the console.

- AWS-GR_REGION_DENY
- AWS-GR_AUDIT_BUCKET_DELETION_PROHIBITED
- AWS-GR_AUDIT_BUCKET_PUBLIC_READ_PROHIBITED
- AWS-GR_AUDIT_BUCKET_PUBLIC_WRITE_PROHIBITED
- AWS-GR_CLOUDTRAIL_CHANGE_PROHIBITED
- AWS-GR_CLOUDTRAIL_CLOUDWATCH_LOGS_ENABLED
- AWS-GR_CLOUDTRAIL_ENABLED
- AWS-GR_CLOUDTRAIL_VALIDATION_ENABLED
- AWS-GR_CLOUDWATCH_EVENTS_CHANGE_PROHIBITED
- AWS-GR_CONFIG_AGGREGATION_AUTHORIZATION_POLICY
Find identifiers for OUs

For more information about how to find the resource identifier for an OU and its resources, see Resource types defined by AWS Organizations.

To learn more about how to get information from an OU, see the AWS Organizations API Reference.

ℹ️ Note

The control State and status information is available in the console only. It is not available from the public API. To view the status of a control, navigate to the Control details page in the AWS Control Tower console.

Control API examples

Each control in AWS Control Tower has a unique identifier for use with the control APIs. The identifier for each control is shown in the API controlIdentifier field, on the Control details page.
in the AWS Control Tower console. This identifier is distinct from the **ControlID** field, which is a classification system for controls.

**Note**

When you invoke `EnableControl` on an account or OU, the `operationIdentifier` value is returned by means of `ListEnabledControls` or `GetEnabledControl` even if the enable operation fails. In the AWS Control Tower console, you can determine whether the `EnableControl` operation was successful, by verifying that the control is enabled on the account or OU. Programatically, you can track the status of the `EnableControl` operation with the `GetControlOperation` API command, by passing it the value of `operationIdentifier` as shown in an example that follows.

**EnableControl**

For more information about this API operation, see [EnableControl](#).

**Example input for EnableControl:**

This example shows how to specify the control you wish to enable, and activate that control for the target OU that you identify.

```json
{
  controlIdentifier: "arn:aws:controltower:us-west-2::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED",
  targetIdentifier: "arn:aws:organizations::123456789123:ou/o-kg8aXXXXXX/ou-prlj-a5kXXXXX"
}
```

**Example output for EnableControl:**

As an example of how to use this output parameter, you can pass the `operationIdentifier` parameter as an input to the `GetControlOperation` API, to track the status of your `EnableControl` task.

```json
{
  "operationIdentifier": "e2bXXXXX-6cab-XXXX-bde7-XX0c6fXXXXXXX"
}
```
Example CLI command:

```
aws controltower enable-control \
--control-identifier arn:aws:controltower:us-west-2::control/AWS-\nGR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED \
--target-identifier arn:aws:organizations::123456789123:ou/o-qni1XXXXXX/ou-vwxu-\nqqlXXXXX \
--region us-west-2
```

**DisableControl**

For more information about this API operation, see [DisableControl](#).

Example input for DisableControl:

```
{
  controlIdentifier: "arn:aws:controltower:us-west-2::control/AWS-\nGR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED",
  targetIdentifier: "arn:aws:organizations::123456789123:ou/o-kg8aXXXXXX/ou-prlj-\na5kXXXXX"
}
```

Example output for DisableControl:

```
{
  "operationIdentifier": "e2bXXXXX-8xai-XXXX-bde7-XX0c6fXXXXXX"
}
```

**GetControlOperation**

For more information about this API operation, see [GetControlOperation](#).

Example input for GetControlOperation:

When you give an `operationIdentifier` as input, you receive a status message as output.

```
{
  operationIdentifier: "e2bXXXXX-6cab-XXXX-bde7-XX0c6fXXXXXX"
}
```
Example output for GetControlOperation:

```json
{
    "ControlOperationStatus": {
        "OperationType": "ENABLE_CONTROL",
        "StartTime": "2022-02-02T20:52:08.034Z",
        "Status": "IN_PROGRESS"
    }
}
```

Example output for GetControlOperation:

```json
{
    "ControlOperationStatus": {
        "EndTime": "2022-04-28T19:36:31Z",
        "OperationType": "DISABLE_CONTROL",
        "StartTime": "2022-04-28T19:35:00Z",
        "Status": "SUCCEEDED"
    }
}
```

```json
{
    "ControlOperationStatus": {
        "EndTime": "2022-04-28T19:36:31Z",
        "OperationType": "DISABLE_CONTROL",
        "StartTime": "2022-04-28T19:35:00Z",
        "Status": "FAILED",
        "StatusMessage": "AWS Control Tower cannot add the SCP because the IAM user or role does not have permission to perform the requested operation in AWS Organizations. To continue, update your access permissions for AWS Organizations. For more information, see Access Management in the IAM User Guide."
    }
}
```

**GetEnabledControl**

For more information about this API operation, see [GetEnabledControl](#).

**Example for GetEnabledControl**

```
aws controltower get-enabled-control --enabled-control-identifier arn:aws:controltower:us-east-1:123456789012:enabledcontrol/49DVF3KP34ANNC57
```
"enabledControlDetails": {
  "arn": "arn:aws:controltower:us-east-1:123456789012:enabledcontrol/49DVF3KP34ANNC57",
  "controlIdentifier": "arn:aws:controltower:us-east-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE",
  "targetIdentifier": "arn:aws:organizations::123456789012:ou/o-ct7amcilen/ou-slfp-nay7ybhu",
  "targetRegions": [
    {
      "name": "eu-north-1"
    },
    {
      "name": "eu-west-2"
    }
  ],
  "statusSummary": {
    "status": "SUCCEEDED",
    "lastOperationIdentifier": "12e51344-a73a-439a-8477-fb3cd7f8b410"
  },
  "driftStatusSummary": {
    "driftStatus": "NOT_CHECKING"
  }
}

**ListEnabledControls**

For more information about this API operation, see [ListEnabledControls](#).

**Example input for ListEnabledControls:**

This example shows how to specify the target OU as input, so you can receive a list of controls as output.

```json
{
  targetIdentifier: "arn:aws:organizations::123456789123:ou/o-kg8aXXXXXX/ou-prlj-a5kXXXXX",
  nextToken: "bde7-XX0c6fXXXXXX",
  maxResults: 2
}
```

**Example output for ListEnabledControls:**
This example shows a larger set of returned values for `ListEnabledControls`.

```
aws controltower list-enabled-controls --target-identifier
arn:aws:organizations::072569612342:ou/o-yy67i3pfv2/ou-slt4-fl6mi3bd --max-items 3
{
   "enabledControls": [
   {
      "arn": "arn:aws:controltower:us-west-2::enabledcontrol/
SOME_ENABLED_CONTROL",
      "controlIdentifier": "arn:aws:controltower:us-west-2::control/
SOME_CONTROL",
      "targetIdentifier": "arn:aws:organizations::072569612342:ou/o-yy67i3pfv2/
ou-slt4-fl6mi3bd",
      "statusSummary": {
         "status": "SUCCEEDED",
         "lastOperationIdentifier": "12e51344-a73a-439a-8477-fb3cd7f8b410"
      },
      "driftStatusSummary": {
         "driftStatus": "NOT_CHECKING"
      }
   },
   {
      "arn": "arn:aws:controltower:us-west-2::enabledcontrol/
OTHER_ENABLED_CONTROL",
      "controlIdentifier": "arn:aws:controltower:us-west-2::control/
OTHER_CONTROL",
      "targetIdentifier": "arn:aws:organizations::072569612342:ou/o-yy67i3pfv2/
ou-slt4-fl6mi3bd",
      "statusSummary": {
      
   }
   }
}
ListTagsForResource

For more information about this API operation, see [ListTagsForResource](#).

Example for ListTagsForResource

```bash
aws controltower list-tags-for-resource --resource-arn "arn:aws:controltower:us-east-1:123456789012:enabledcontrol/49DVF3KP34ANNC57"

{
   "TestTagKey": "TestTagValue"
}
```

TagResource

For more information about this API operation, see [TagResource](#).

Example for TagResource

```bash
```

336
UntagResource

For more information about this API operation, see UntagResource.

Example for UntagResource

```bash
aws controltower untag-resource --resource-arn "arn:aws:controltower:us-east-1:123456789012:enabledcontrol/49DVF3KP34ANNC57" --tag-keys "TestTagKey"
{
}
```

UpdateEnabledControl

For more information about this API operation, see UpdateEnabledControl.

Change the parameters of a control:

```bash
aws controltower update-enabled-control \
   --enabled-control-identifier arn:aws:controltower:us-east-1:0123456789012:enabledcontrol/EXAMPLE_NAME \n   --parameters '[["key":"AllowedRegions","value":\"us-east-1","us-west-1","us-west-2","us-east-2\"]],{"key":"ExemptedPrincipalArns","value":\"arn:aws:iam::*:role/ReadOnly","arn:aws:sts::*:assumed-role/ReadOnly/*\"]},{"key":"ExemptedActions","value":\"logs:DescribeLogGroups","logs:StartQuery","logs:GetQueryResults","cloudwatch:Get*","cloudwatch:Describe*\"]}'
```

Here's a more readable version of parameters input:

```json
[
  {
    "key": "AllowedRegions",
    "value": [
      "us-east-1",
      "us-west-1",
      "us-west-2",
      "us-east-2"
    ]
  }
]
```
You can view the existing parameters for a control with the GetEnabledControl API call.

Example input:

```
aws controltower get-enabled-control --enabled-control-identifier
arn:aws:controltower:us-east-1:01234567890:enabledcontrol/EXAMPLE_NAME \
```

Example output:

```
{
   "enabledControlDetails": {
      "arn": "arn:aws:controltower:us-east-1:01234567890:enabledcontrol/EXAMPLE_NAME",
      "controlIdentifier": "arn:aws:controltower:us-east-1::control/EXAMPLE_NAME",
      "targetIdentifier": "arn:aws:organizations::01234567890:ou/o-EXAMPLE/ou-zzxx-zzx0zzz2",
      ...
   }
}
```
"parameters": [  
  {  
    "key": "ExemptedPrincipalArns",  
    "value": [  
      "arn:aws:iam::*:role/ReadOnly"  
    ]  
  },  
  {  
    "key": "AllowedRegions",  
    "value": [  
      "us-east-1",  
      "us-west-1"  
    ]  
  },  
  {  
    "key": "ExemptedActions",  
    "value": [  
      "logs:DescribeLogGroups",  
      "logs:StartQuery",  
      "logs:GetQueryResults"  
    ]  
  }  
]  
}  

Enable controls with AWS CloudFormation

You can enable controls with AWS CloudFormation, either through the AWS CloudFormation console, or through the AWS CLI. This section gives an example of each type.

Each control in AWS Control Tower has a unique identifier for use with the control APIs. The identifier for each control is shown in the API controlIdentifier field, on the Control details page in the AWS Control Tower console. This identifier is distinct from the ControlID field, which is a classification system for controls.

Create the stack through AWS CloudFormation

You can use AWS CloudFormation to help you enable AWS Control Tower controls. Here's an example template.
TestControl:
  Type: AWS::ControlTower::EnabledControl
  Properties:
    ControlIdentifier: arn:aws:controltower:us-west-2::control/AWS-GR_RESTRICT_ROOT_USER
    TargetIdentifier: arn:aws:organizations::123456789012:ou/o-ybfpt9XXXl/ou-XXXc-n1qXXXXX

To create your stack through the AWS CloudFormation console, edit the template to contain the control and target of your choice, then save the template with the file name template.yaml. Follow the AWS CloudFormation wizard. When the wizard asks for a template file, enter the file you saved as template.yaml. For more information, see Creating a stack on the Amazon CloudFormation console.

Note

The limit for EnableControl and DisableControl updates in AWS Control Tower is 10 concurrent operations.

Create the stack through AWS CloudFormation and the AWS CLI

Here's an example of creating the stack with the CLI.

```bash
aws cloudformation create-stack --region us-west-2 --stack-name testControlTower --
  template-body "$(cat << TEMPLATE
 Resources:
   TestControl:
     Type: AWS::ControlTower::EnabledControl
     Properties:
       ControlIdentifier: arn:aws:controltower:us-west-2::control/AWS-GR_RESTRICT_ROOT_USER
       TargetIdentifier: arn:aws:organizations::123456789012:ou/o-ybfpt9XXXl/ou-XXXc-n1qXXXXX
     TEMPLATE)"
```

You can also save the example template as a template.yaml file, then upload your file to an Amazon S3 bucket. Later, you can provide the URL for the bucket with the --template-url flag.

When you enter your template into the wizard or through the CLI, if the stack is created, it means that the control was enabled.
View the progress of your stack through the AWS CLI:

```bash
aws cloudformation describe-stack-events --region us-west-2 --stack-name testControlTower
```

or

```bash
aws cloudformation describe-stacks --region us-west-2 --stack-name testControlTower
```

Delete the stack through the AWS CLI:

```bash
aws cloudformation delete-stack --region us-west-2 --stack-name testControlTower
```

Configure controls with AWS CloudFormation

The following examples show how to configure controls through AWS CloudFormation templates. These examples happen to show `Value` as a list, but it can be any of several types.

Enable configurable controls with AWS CloudFormation templates

Enable a control with parameters through AWS CloudFormation:

```bash
aws cloudformation create-stack \
   --stack-name ExampleStack \
   --template-body file://ExampleStack.yml \
   --region us-east-1
```

Example templates in YAML and JSON:

```
Resources:
   MyExampleControl:
     Properties:
       ControlIdentifier: arn:aws:controltower:us-east-1::control/EXAMPLE_NAME
       TargetIdentifier: arn:aws:organizations::01234567890:ou/o-EXAMPLE/ou-zxx-zxx0zzz2
     Parameters:
       - Key: AllowedRegions
         Value:
           - us-east-1
           - us-west-1
```
- Key: ExemptedPrincipalArns
  Value:
  - arn:aws:iam::*:role/ReadOnly
- Key: ExemptedActions
  Value:
  - logs:DescribeLogGroups
  - logs:StartQuery
  - logs:GetQueryResults
Type: AWS::ControlTower::EnabledControl

{
  "Resources": {
    "MyExampleControl": {
      "Type": "AWS::ControlTower::EnabledControl",
      "Properties": {
        "TargetIdentifier": "arn:aws:organizations::01234567890:ou/o-EXAMPLE/ou-zxx-zzx0zzz2",
        "ControlIdentifier": "arn:aws:controltower:us-east-1::control/EXAMPLE_NAME",
        "Parameters": [
          {
            "Key": "AllowedRegions",
            "Value": [
              "us-east-1",
              "us-west-1"
            ]
          },
          {
            "Key": "ExemptedPrincipalArns",
            "Value": [
              "arn:aws:iam::*:role/ReadOnly"
            ]
          },
          {
            "Key": "ExemptedActions",
            "Value": [
              "logs:DescribeLogGroups",
              "logs:StartQuery",
              "logs:GetQueryResults"
            ]
          }
        ]
      }
    }
  }
}
Enable controls on an OU from the console

Mandatory and inherited controls are enabled automatically according to an OU's configuration. Optional controls can be enabled manually on your OUs, from the console, or by means of the control APIs. The following procedure describes the steps for enabling controls on an OU, from the console.

⚠️ Important
When you enable optional controls, AWS Control Tower creates and manages AWS resources in your accounts. Do not modify or delete resources created by AWS Control Tower. Doing so could result in the controls entering an unknown state.

To enable controls in an OU, from the console

2. From the left navigation, choose Controls.
3. Choose a control that you want to enable; for example, Control: Detect Whether Encryption is Enabled for Amazon EBS Volumes Attached to Amazon EC2 Instances. This choice opens the control's details page.
4. From Organizational units enabled, choose Enable control on OU.
5. A new page is displayed that lists the names of your OUs. Identify the OU on which you want to enable this control.
6. Choose Enable control on OU.
7. Your control is now enabled. It may take several minutes for the change to complete. When it does, you'll see that this control is applied to the OU you selected.
To deactivate controls for an OU, from the console

2. From the left navigation, choose Controls.
3. Choose a control that you want to deactivate; for example, Control: Detect Whether Encryption is Enabled for Amazon EBS Volumes Attached to Amazon EC2 Instances. This choice opens the control's details page.
4. From the Organizational units enabled tab, select the radio button next to the OU from which you want to remove the control.
5. Choose Disable control at the upper right.
6. Your control is now deactivated. It may take several minutes for the change to complete. When it does, you'll see that this control is no longer applied to the OU you selected.

Concurrent deployment for optional controls

When applying optional controls, you can deploy more than one control at a time. For example, you can enable Detect Whether MFA for the Root User is Enabled and Detect Whether Public Write Access to Amazon S3 Buckets is Allowed, at the same time.

You can apply and remove multiple optional controls without waiting for individual control operations to complete, and up to 25 control operations are queued. The only restricted times are when AWS Control Tower is in the process of landing zone setup, or while extending governance to a new organization.
Functionality available in the console and with APIs

- Apply and remove different detective controls on the same OU, concurrently.
- Apply and remove different detective controls on different OUs, concurrently.
- Apply and remove the same detective control on multiple OUs, concurrently.
- Apply and remove different preventive controls on the same OU, concurrently.
- Apply and remove different preventive controls on different OUs, concurrently.
- Apply and remove the same preventive control on multiple OUs, concurrently.
- Apply and remove different proactive controls on the same OU, concurrently.
- Apply and remove different proactive controls on different OUs, concurrently.
- Apply and remove the same proactive control on multiple OUs, concurrently.
- You can apply and remove preventive, detective, and proactive controls, concurrently.

When you apply preventive controls to nested OUs, the preventive controls affect all accounts and OUs nested under the target OU, even if those accounts and OUs are not registered with AWS Control Tower. Preventive controls are implemented using Service Control Policies (SCPs), which are part of AWS Organizations. Detective controls are implemented using AWS Config rules. Proactive controls are implemented using CloudFormation hooks.

Controls remain in effect for the entire OU, as you create new accounts or make changes to your existing accounts, and AWS Control Tower provides a summary report of how each account conforms to your enabled controls. For a full list of available controls, see The AWS Control Tower controls library.

Controls and compliance

Within AWS Control Tower, compliance refers to the state of a resource, when it is evaluated with respect to a deployed detective control, or a drift detection rule. Compliance in AWS Control Tower is related to drift — usually, a non-compliant resource is in a state of drift. AWS Control Tower controls embody rules of compliance. They help you identify compliant and non-compliant resources by helping identify drift.

When AWS Control Tower evaluates the compliance of resources, it reports the compliance results at the OU, account, and control levels. This section describes compliance status in detail, for controls, OUs, and accounts.
Compliance reporting is intended to let cloud administrators know when the resources associated with the accounts in their organization are compliant with established policies. When the resources are in compliance, builders can provision new AWS accounts quickly in a few clicks.

When we talk about compliance in AWS Control Tower, we do not intend the same meaning as compliance with governmental regulations, such as data privacy or health information standards. However, AWS Control Tower can assist your organization to comply with many governmental regulations, sometimes referred to as frameworks.

- For more information about how AWS Control Tower helps you maintain compliance with governmental regulations and industry standards, see Compliance Validation.
- For more information about how you can verify AWS Control Tower resource compliance during AWS CloudFormation stack creation, see this blog post, How AWS Control Tower users can proactively verify compliance in AWS CloudFormation stacks.

For ongoing governance, administrators can enable pre-configured controls—clearly defined rules for security, operations, and compliance. These controls can:

- Prevent deployment of resources that don’t conform to policies (by means of preventive controls, implemented with SCPs, or by means of proactive controls, implemented with AWS CloudFormation hooks).
- Continuously monitor deployed resources for nonconformance (by means of detective controls, implemented with AWS Config rules).

Examples of compliance rules (controls) in AWS Control Tower:

- Detect Whether Public Write Access to Amazon S3 Buckets is Allowed
- Detect Whether Unrestricted Incoming TCP Traffic is Allowed

Examples of governmental compliance regulations (frameworks):

- The U.S. Health Insurance Portability and Accountability Act of 1996 (HIPAA)
- The European Union’s General Data Protection Regulation of 2016 (GDPR)
**How can administrators review compliance?**

Compliance with detective controls is determined according to data retrieved from the AWS Config aggregator in the AWS Control Tower Audit account. You can review compliance status in the AWS Control Tower console, by subscribing to SNS topics that send email messages to the Audit account, or both.

**Detective control status**

To view the compliance status of detective controls in the AWS Control Tower console, select Controls in the left navigation, choose the control name from the controls table, and then scroll to the Accounts section on that control details page. Accounts may show a control compliance status of Unknown if any detective controls are misconfigured. For example, status Unknown often can appear due to account drift, such as Moved account drift. The Unknown status also can appear as a result of SCP drift.

**Note**

AWS Control Tower displays the compliance status of all AWS Config rules deployed into organizational units registered with AWS Control Tower, including rules that were activated outside of the AWS Control Tower console. To view the compliance status of all your Config rules, navigate to the Account details page in the AWS Control Tower console. You will see a list showing the compliance status of controls managed by AWS Control Tower and Config rules deployed outside of AWS Control Tower. You can identify any non-compliant AWS Config rule.

**Preventive control status**

The compliance status of preventive controls on an OU may be viewed on the OU detail page, by scrolling to the Enabled controls section. If any preventive controls are misconfigured for an OU, the State field for that OU may show the state of Registration failed, in the Details section near the top of the page. Preventive control misconfiguration is caused most often by SCP drift, which can occur if the control's SCP is modified or detached from the OU by means of the AWS Organizations console.

**Proactive control status**

The control compliance status also can be viewed on other pages:
• On the AWS Control Tower **Dashboard** page, by scrolling to the **Controls** section near the bottom of the page.

• On the **Control details** page, which you can view by selecting the name of a control on another page.

---

**Note**

The **State** of a control, as viewed in the AWS Control Tower console, reflects only the enabled or de-activated state of the control for a specific OU. This field does not reflect any information about the framework compliance status or the drift status of the landing zone environment. The control **State** and **Status** information is available in the console only. It is not available from the public API. To view the control status, navigate to the **Control details** page in the AWS Control Tower console.

---

**Nested OUs and compliance**

When an OU shows a status of **Noncompliant**, it means that one of the accounts directly under the OU contains noncompliant resources. The compliance status of an OU is not influenced by the compliance status of nested OUs under the OU, or the compliance status of any accounts that are not directly under the OU.

**Other resources**

If an account has any non-compliant resources, that account may be shown with **Noncompliant** status on the **OU** or **Account** page in the AWS Control Tower console. Details about the specific resources that have caused the non-compliant status are shown on the **Account details** page.

If an account shows **Compliant** status, that means it has no resources that are non-compliant; therefore, no resource details are shown on the **Account details** page, only an empty table.

**Receive compliance status updates**

To receive updates about compliance, you can subscribe to SNS topics that send notifications when resource compliance status changes. See **Compliance notifications by SNS in the audit account**, later in this chapter.

For more information on how AWS Control Tower collects information about resources, see the **AWS Config Aggregator Documentation**.
Drift changes the compliance status for OU and account resources

Drifted resources may be shown with status Unknown in the Compliance status field of the AWS Control Tower console. The Unknown state indicates that AWS Control Tower cannot determine the compliance status of the resource, because drift is present. Drift is not necessarily a detective control compliance violation. For more information about drift, see Detect and resolve drift in AWS Control Tower.

In another case of this type of drift, resources may be shown as compliant when they are not. If you delete an AWS Config rule, or if you turn off the Config recorder, compliance status may be reflected inaccurately in the console, because compliance no longer can be evaluated. For example, if you turn off the Config recorder, the last evaluated status continues to appear in the console. Similarly, if you delete an AWS Config rule, the resources covered by that rule always show to be compliant. In this situation, your environment could have some non-compliant resources that are not reported. Avoid deleting or turning off your AWS Config resources.

AWS Control Tower compliance status for controls, OUs, and accounts

Compliance is reported in the AWS Control Tower dashboard for controls, accounts, and OUs. This section lists the possible categories of compliance and non-compliance in AWS Control Tower, assuming that controls are enabled for an account or an OU.

- **For a control:** A compliance status of Enforced, Clear, or In violation is possible, as long as the control is enabled on your OUs and the member accounts in the OUs. You can view this control status on individual control detail pages.

- **For an account or OU:** A compliance status of Compliant, Noncompliant, or Unknown is possible. The compliance status refers to the status of the resources associated with a single account, or the status of all accounts in an OU that has multiple controls enabled on it. The account or OU compliance status can be found on the account or OU detail pages.

Note

The State of a control, as viewed in the AWS Control Tower console, reflects only the enabled or de-activated state of the control for a specific OU. This field does not reflect any information about the framework compliance status or the drift status of the landing zone environment. The control State and Status information is available in the console only.
It is not available from the public API. To view the control status, navigate to the **Control details** page in the AWS Control Tower console.

The following list gives more information about compliance status as reported specifically for controls.

- **Enforced** – Maximum level of protection. Operations that would break this compliance rule are simply not allowed.
  - **Reported for:** Preventive controls (SCPs)
  - **Applies to:** Any preventive control that's enabled on any of multiple accounts that are members of an OU. Controls are enabled at the OU level.

- **Clear** – Compliance rules are properly in place. No violations have been detected.
  - **Reported for:** Detective controls (AWS Config Rules)
  - **What is checked:** Any detective control that's enabled on any of multiple accounts that are members of an OU. Controls are enabled at the OU level.

- **In violation** – Denotes that resources are actively breaching a control.
  - **Reported for:** Detective controls (AWS Config Rules)
  - **What is checked:** Any detective control that's enabled on any of multiple accounts that are members of an OU. Controls are enabled at the OU level.

The following list gives more information about compliance status as reported specifically for OUs and their member accounts.

- **Compliant** – Compliance rules are properly in place. No violations have been detected for any resources. Controls are applied at the OU level, for all enrolled accounts in the OU, and their resources.
  - **Reported for:** Detective controls (AWS Config Rules)
  - **What it checks:**
    - Any individual detective control that's applied to the member accounts in an OU
    - Multiple detective controls that are applied to the member accounts in an OU

- **Noncompliant** – Compliance rules are in place. However, non-compliant resources have been detected in one or more member accounts in the OU.
  - **Reported for:** Detective controls (AWS Config Rules)
• What it checks:
  • Any individual detective control that's applied to the member accounts in an OU
  • Multiple detective controls that are applied to the member accounts in an OU

The following status can be reported for any account, control, or OU.

Unknown – A compliance rule is broken or compliance cannot be guaranteed.

• Reported for:
  • Detective controls (AWS Config Rules)
  • Preventive controls (SCPs)

• What it checks:
  • Any detective control that's enabled on any accounts that are members of an OU. Controls are enabled at the OU level.
  • Any preventive control that's enabled on any accounts that are members of an OU. Controls are enabled at the OU level.
  • Basically anything with a compliance status (account, control, resource, or OU).

Drift prevention and notification

You can enable certain controls and subscribe to certain SNS notifications that help you maintain compliance in AWS Control Tower.

Drift monitoring protection

AWS Control Tower provides passive and active methods of drift monitoring protection for preventive controls.

• Passive protection: AWS Organizations monitors and logs preventive control (SCP) drift.
• Active protection: The AWS Control Tower drift monitoring service actively scans the preventive control SCPs, on a regular basis.

AWS Control Tower notifies you by means of SNS messaging, if drift is detected.

Drift prevention
Some controls prevent modification of compliance reporting mechanisms.

- **Disallow Changes to AWS Config Rules Set Up by AWS Control Tower** (Mandatory, preventive control)
- **Disallow Deletion of AWS Config Aggregation Authorizations Created by AWS Control Tower** (Mandatory, preventive control)
- **Disallow Changes to Tags Created by AWS Control Tower for AWS Config Resources** (Mandatory, preventive control)
- **Disallow Configuration Changes to AWS Config** (Mandatory, preventive control)

In contrast to preventive controls, detective controls notify you of resources that violate the associated AWS Config rule.

**To receive SNS notifications about drift and control compliance**

For information about how to receive appropriate drift and control compliance notifications by Amazon SNS, see [Compliance notifications by SNS in the audit account](#).

**Publishers and subscribers for SNS topics**

**The aws-controltower-AllConfigNotifications topic:**

- The AWS::Config::DeliveryChannel resource is configured to send notifications about configuration changes to this topic.
- The possible types of notifications that AWS Config can send are defined in the [Amazon SNS Topic section](#) of the AWS Config documentation.
- The AWS::CloudTrail::Trail resource is configured to send notifications of log file delivery to this topic.
- You may subscribe to this topic.

**The aws-controltower-SecurityNotifications topic:**

- The AWS::Events::Rule resource is configured to send notifications about AWS Config Rule compliance changes (one of the SNS notification types) to this topic.
- The aws-controltower-NotificationForwarder Lambda function is subscribed to this topic, and it forwards the SNS notifications to the aws-controltower-AggregateSecurityNotifications topic.
The `aws-controltower-AggregateSecurityNotifications` topic:

- This topic receives notifications from `aws-controltower-SecurityNotifications`, forwarded by the Lambda function.
- It also receives drift notifications in the home Region.
- When AWS Control Tower creates the topic, a subscription is added for the audit account email address, and you must confirm the subscription.

**Note**

The endpoint, such as an email address, must confirm each subscription, SNS doesn’t send messages to an endpoint until the subscription is confirmed.

### Compliance notifications by SNS in the audit account

To receive compliance change notifications in email sent to your audit account, subscribe to this Amazon SNS topic:

```
```

When subscribing, substitute your actual AWS Control Tower home Region and audit account information into the topic name shown. You can subscribe to SNS topics that receive notifications about each supported AWS Region in which you run AWS Control Tower.

### SNS topics and notifications you can receive

- **The `aws-controltower-AllConfigNotifications` topic:**

  It receives notifications from AWS Config regarding compliance, noncompliance, and change. It also receives notification from AWS CloudTrail on log file delivery.

- **The `aws-controltower-SecurityNotifications` topic:**

  One of these topics exists for each supported AWS Region. It receives compliance, noncompliance, and change notifications from AWS Config in that Region. It forwards all incoming notifications to `aws-controltower-AggregateSecurityNotifications`

- **The `aws-controltower-AggregateSecurityNotifications` topic:**
This topic exists in each supported AWS Region. It receives compliance change notifications from the region-specific \texttt{aws-controltower-SecurityNotifications} topics. Additionally, in the home Region, it also receives drift notifications.

**Other considerations about SNS topics:**

- All of these topics exist and receive notifications in the Audit account.
- By default, the Audit account email address is subscribed to the \texttt{aws-controltower-AggregateSecurityNotifications} SNS topic.
- SNS topics in AWS Control Tower are extremely noisy, by design. For example, AWS Config sends a notification every time AWS Config discovers a new resource.
- Administrators who wish to filter out specific types of notifications from an SNS topic can create an AWS Lambda function and subscribe it to the SNS topic. Alternatively, you can set up an EventBridge rule to filter notifications, as described in this support article, \textbf{How can I be notified when an AWS resource is non-compliant using AWS Config?}
- AWS Config notifications contain a JSON object.
- AWS Control Tower drift notifications appear in plain text.

**The AWS Config SNS topic policy**

The AWS Config SNS topic policy contains the \texttt{aws:SourceOrgID} condition key. The policy is shown in the following example.

```json
SNSAllConfigurationTopicPolicy:  
  Type: AWS::SNS::TopicPolicy  
  Properties:  
    Topics:  
      - !Ref SNSAllConfigurationTopic  
  PolicyDocument:  
    Statement:  
      - Sid: AWSSNSPolicy  
        Action:  
          - sns:Publish  
        Effect: Allow  
        Resource: !Ref SNSAllConfigurationTopic  
    Principal:  
      Service:  
```
The AWS Control Tower controls library

The following sections include an individual reference entry for each of the controls available in AWS Control Tower. The controls are grouped into sections according to common characteristics. Each control reference entry includes the details, artifacts, additional information, and considerations to keep in mind when enabling a specific control on a OU in your landing zone.

For summary tables of control information, see Tables of control metadata. Additional detail is available in the AWS Control Tower console.

Topics
- Mandatory controls
- Proactive controls
- Security Hub standard
- Controls that enhance digital sovereignty protection
- Optional controls

Note
The four mandatory controls with "Sid": "GRCLOUDTRAILENABLED" are identical by design. The sample code is correct.

Mandatory controls

Mandatory controls are owned by AWS Control Tower, and they apply to every OU on your landing zone. These controls are applied by default when you set up your landing zone, and they can't be deactivated. Following, you'll find a reference for each of the mandatory controls available in AWS Control Tower.

Topics
• **Disallow Changes to Encryption Configuration for AWS Control Tower Created Amazon S3 Buckets in Log Archive**

• **Disallow Changes to Logging Configuration for AWS Control Tower Created Amazon S3 Buckets in Log Archive**

• **Disallow Changes to Bucket Policy for AWS Control Tower Created Amazon S3 Buckets in Log Archive**

• **Disallow Changes to Lifecycle Configuration for AWS Control Tower Created Amazon S3 Buckets in Log Archive**

• **Disallow Changes to Amazon CloudWatch Logs Log Groups set up by AWS Control Tower**

• **Disallow Deletion of AWS Config Aggregation Authorizations Created by AWS Control Tower**

• **Disallow Deletion of Log Archive**

• **Detect Public Read Access Setting for Log Archive**

• **Detect Public Write Access Setting for Log Archive**

• **Disallow Configuration Changes to CloudTrail**

• **Integrate CloudTrail Events with Amazon CloudWatch Logs**

• **Enable CloudTrail in All Available Regions**

• **Enable Integrity Validation for CloudTrail Log File**

• **Disallow Changes to Amazon CloudWatch Set Up by AWS Control Tower**

• **Disallow Changes to Tags Created by AWS Control Tower for AWS Config Resources**

• **Disallow Configuration Changes to AWS Config**

• **Enable AWS Config in All Available Regions**

• **Disallow Changes to AWS Config Rules Set Up by AWS Control Tower**

• **Disallow Changes to AWS IAM Roles Set Up by AWS Control Tower and AWS CloudFormation**

• **Disallow Changes to AWS Lambda Functions Set Up by AWS Control Tower**

• **Disallow Changes to Amazon SNS Set Up by AWS Control Tower**

• **Disallow Changes to Amazon SNS Subscriptions Set Up by AWS Control Tower**

• **Detect whether shared accounts under the Security organizational unit have AWS CloudTrail or CloudTrail Lake enabled**
Note

The four mandatory controls with "Sid": "GRCLOUDTRAILENABLED" are identical by design. The sample code is correct.

Disallow Changes to Encryption Configuration for AWS Control Tower Created Amazon S3 Buckets in Log Archive

This control prevents changes to encryption for the Amazon S3 buckets that AWS Control Tower creates in the log archive account. This is a preventive control with mandatory guidance. By default, this control is enabled on the Security OU. It cannot be enabled on additional OUs.

The artifact for this control is the following service control policy (SCP).

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRCTAUDITBUCKETENCRYPTIONCHANGESPROHIBITED",
            "Effect": "Deny",
            "Action": [
                "s3:PutEncryptionConfiguration"
            ],
            "Resource": ["arn:aws:s3:::aws-controltower*"],
            "Condition": {
                "ArnNotLike": {
                    "aws:PrincipalARN": "arn:aws:iam::*:role/AWSControlTowerExecution"
                }
            }
        }
    ]
}
```

Disallow Changes to Logging Configuration for AWS Control Tower Created Amazon S3 Buckets in Log Archive

This control prevents changes to logging configuration for the Amazon S3 buckets that AWS Control Tower creates in the log archive account. This is a preventive control with mandatory
guidance. By default, this control is enabled on the Security OU. It cannot be enabled on additional OUs.

The artifact for this control is the following SCP.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "GRCTAUDITBUCKETLOGGINGCONFIGURATIONCHANGESPROHIBITED",
         "Effect": "Deny",
         "Action": [
            "s3:PutBucketLogging"
         ],
         "Resource": ["arn:aws:s3:::aws-controltower*"],
         "Condition": {
            "ArnNotLike": {
               "aws:PrincipalARN": "arn:aws:iam::*:role/AWSControlTowerExecution"
            }
         }
      }
   ]
}
```

### Disallow Changes to Bucket Policy for AWS Control Tower Created Amazon S3 Buckets in Log Archive

This control prevents changes to bucket policy for the Amazon S3 buckets that AWS Control Tower creates in the log archive account. This is a preventive control with mandatory guidance. By default, this control is enabled on the Security OU. It cannot be enabled on additional OUs.

The artifact for this control is the following SCP.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "GRCTAUDITBUCKETPOLICYCHANGESPROHIBITED",
         "Effect": "Deny",
         "Action": [
```
Disallow Changes to Lifecycle Configuration for AWS Control Tower Created Amazon S3 Buckets in Log Archive

This control prevents lifecycle configuration changes for the Amazon S3 buckets that AWS Control Tower creates in the log archive account. This is a preventive control with mandatory guidance. By default, this control is enabled on the Security OU. It cannot be enabled on additional OUs.

The artifact for this control is the following SCP.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRCTAUDITBUCKETLIFECYCLECONFIGURATIONCHANGESPROHIBITED",
            "Effect": "Deny",
            "Action": ["s3:PutLifecycleConfiguration"],
            "Resource": ["arn:aws:s3:::aws-controltower*"],
            "Condition": {
                "ArnNotLike": {
                    "aws:PrincipalARN":"arn:aws:iam::*:role/AWSControlTowerExecution"
                }
            }
        }
    ]
}
```
Disallow Changes to Amazon CloudWatch Logs Log Groups set up by AWS Control Tower

This control prevents changes to the retention policy for Amazon CloudWatch Logs log groups that AWS Control Tower created in the log archive account when you set up your landing zone. It also prevents modifying the log retention policy in customer accounts. This is a preventive control with mandatory guidance. By default, this control is enabled on all OUs.

The artifact for this control is the following SCP.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRLOGGROUPPOLICY",
            "Effect": "Deny",
            "Action": [
                "logs:DeleteLogGroup",
                "logs:PutRetentionPolicy"
            ],
            "Resource": [
                "arn:aws:logs:*:*:log-group:*aws-controltower*"
            ],
            "Condition": {
                "StringNotLike": {
                    "aws:PrincipalArn": [
                        "arn:aws:iam::*:role/AWSControlTowerExecution"
                    ]
                }
            }
        }
    ]
}
```

Disallow Deletion of AWS Config Aggregation Authorizations Created by AWS Control Tower

This control prevents deletion of AWS Config aggregation authorizations that AWS Control Tower created in the audit account when you set up your landing zone. This is a preventive control with mandatory guidance. By default, this control is enabled on all OUs.

The artifact for this control is the following SCP.
Disallow Deletion of Log Archive

This control prevents deletion of Amazon S3 buckets created by AWS Control Tower in the log archive account. This is a preventive control with mandatory guidance. By default, this control is enabled on the Security OU.

The artifact for this control is the following SCP.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRAUDITBUCKETDELETIONPROHIBITED",
            "Effect": "Deny",
            "Action": ["s3:DeleteBucket"],
            "Resource": [
                "arn:aws:s3:::log-archive-ou/
                "arn:aws:s3:::log-archive-ou/*"
            ],
            "Condition": {
                "ArnNotLike": {
                    "aws:PrincipalArn": "arn:aws:iam::*:role/AWSControlTowerExecution"
                },
                "StringLike": {
                    "aws:ResourceTag/aws-control-tower": "managed-by-control-tower"
                }
            }
        }
    ]
}
```
Detect Public Read Access Setting for Log Archive

This control detects whether public read access is enabled to the Amazon S3 buckets in the log archive shared account. This control does not change the status of the account. This is a detective control with mandatory guidance. By default, this control is enabled on the Security OU.

The artifact for this control is the following AWS Config rule.

```
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check that your S3 buckets do not allow public access
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
Resources:
  CheckForS3PublicRead:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Checks that your S3 buckets do not allow public read access. If an S3 bucket policy or bucket ACL allows public read access, the bucket is noncompliant.
      Source:
        Owner: AWS
        SourceIdentifier: S3_BUCKET_PUBLIC_READ_PROHIBITED
      Scope:
        ComplianceResourceTypes:
          - AWS::S3::Bucket
```
Detect Public Write Access Setting for Log Archive

This control detects whether public write access is enabled to the Amazon S3 buckets in the log archive shared account. This control does not change the status of the account. This is a detective control with mandatory guidance. By default, this control is enabled on the Security OU.

The artifact for this control is the following AWS Config rule.

```json
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check that your S3 buckets do not allow public access
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
Resources:
  CheckForS3PublicWrite:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Checks that your S3 buckets do not allow public write access. If an S3 bucket policy or bucket ACL allows public write access, the bucket is noncompliant.
      Source:
        Owner: AWS
        SourceIdentifier: S3_BUCKET_PUBLIC_WRITE_PROHIBITED
      Scope:
        ComplianceResourceTypes:
        - AWS::S3::Bucket
```

Disallow Configuration Changes to CloudTrail

This control prevents configuration changes to CloudTrail in your landing zone. This is a preventive control with mandatory guidance. By default, this control is enabled on all OUs.

The artifact for this control is the following SCP.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "GRCLOUDTRAILENABLED",
         "Effect": "Deny",
```
Integrate CloudTrail Events with Amazon CloudWatch Logs

This control performs real-time analysis of activity data by sending CloudTrail events to CloudWatch Logs log files. This is a preventive control with mandatory guidance. By default, this control is enabled on all OUs.

The artifact for this control is the following SCP.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRCLOUDTRAILENABLED",
            "Effect": "Deny",
            "Action": [
                "cloudtrail:DeleteTrail",
                "cloudtrail:PutEventSelectors",
                "cloudtrail:StopLogging",
                "cloudtrail:UpdateTrail"
            ],
            "Resource": ["arn:aws:cloudtrail:*:*:trail/aws-controltower-*"],
            "Condition": {
                "ArnNotLike": {
                    "aws:PrincipalARN": "arn:aws:iam::*:role/AWSControlTowerExecution"
                }
            }
        }
    ]
}
```
Enable CloudTrail in All Available Regions

This control enables CloudTrail in all available AWS Regions. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

The artifact for this control is the following SCP.

```
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "GRCLOUDTRAILENABLED",
         "Effect": "Deny",
         "Action": [
            "cloudtrail:DeleteTrail",
            "cloudtrail:PutEventSelectors",
            "cloudtrail:StopLogging",
            "cloudtrail:UpdateTrail"
         ],
         "Resource": ["arn:aws:cloudtrail::*:*:trail/aws-controltower-*"],
         "Condition": {
            "ArnNotLike": {
               "aws:PrincipalARN": "arn:aws:iam::*:role/AWSControlTowerExecution"
            }
         }
      }
   ]
}
```

Enable Integrity Validation for CloudTrail Log File

This control enables integrity validation for the CloudTrail log file in all accounts and OUs. It protects the integrity of account activity logs using CloudTrail log file validation, which creates a digitally signed digest file that contains a hash of each log that CloudTrail writes to Amazon S3. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

The artifact for this control is the following SCP.

```
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "GRCLOUDTRAILINTTEGRITY",
         "Effect": "Deny",
         "Action": [
            "cloudtrail:DescribeTrails",
            "cloudtrail:ListEventSelectors",
            "cloudtrail:ListEventSelectors",
            "cloudtrail:ListTagsForResource",
            "cloudtrail:PutEventSelectors",
            "cloudtrail:StopLogging",
            "cloudtrail:UpdateTrail"
         ],
         "Resource": ["arn:aws:cloudtrail::*:*:trail/aws-controltower-*"],
         "Condition": {
            "ArnNotLike": {
               "aws:PrincipalARN": "arn:aws:iam::*:role/AWSControlTowerExecution"
            }
         }
      }
   ]
}
```
Disallow Changes to Amazon CloudWatch Set Up by AWS Control Tower

This control disallows changes to Amazon CloudWatch; as it was configured by AWS Control Tower when you set up your landing zone. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

The artifact for this control is the following SCP.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRCLOUDWATCHEVENTPOLICY",
            "Effect": "Deny",
            "Action": [
                "events:PutRule",
                "events:PutTargets",
                "events:RemoveTargets",
                "events:DisableRule",
                "events:DeleteRule"
            ],
            "Resource": [
            ]
        }
    ]
}
```
Disallow Changes to Tags Created by AWS Control Tower for AWS Config Resources

This control prevents changes to the tags that AWS Control Tower created when you set up your landing zone, for AWS Config resources that collect configuration and compliance data. It denies any TagResource and UntagResource operation for aggregation authorizations tagged by AWS Control Tower. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

The artifact for this control is the following SCP.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRCONFIGRULETAGSPOLICY",
            "Effect": "Deny",
            "Action": [
                "config:TagResource",
                "config:UntagResource"
            ],
            "Resource": ["*"],
            "Condition": {
                "ArnNotLike": {
                    "aws:PrincipalARN": "arn:aws:iam::*:role/AWSControlTowerExecution"
                },
                "ForAllValues:StringEquals": {
                    "aws:TagKeys": "aws-control-tower"
                }
            }
        }
    ]
}
```
Disallow Configuration Changes to AWS Config

This control prevents configuration changes to AWS Config. It ensures that AWS Config records resource configurations in a consistent manner by disallowing AWS Config settings changes. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

The artifact for this control is the following SCP.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRCONFIGENABLED",
            "Effect": "Deny",
            "Action": [
                "config:DeleteConfigurationRecorder",
                "config:DeleteDeliveryChannel",
                "config:DeleteRetentionConfiguration",
                "config:PutConfigurationRecorder",
                "config:PutDeliveryChannel",
                "config:PutRetentionConfiguration",
                "config:StopConfigurationRecorder"
            ],
            "Resource": ["*"]
        }
    ],
    "Resource": ["*"],
    "Condition": {
        "ArnNotLike": {
            "aws:PrincipalARN":"arn:aws:iam::*:role/AWSControlTowerExecution"
        }
    }
}
```

Enable AWS Config in All Available Regions

This control enables AWS Config in all available AWS Regions. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

The artifact for this control is the following SCP.
Disallow Changes to AWS Config Rules Set Up by AWS Control Tower

This control disallows changes to AWS Config Rules that were implemented by AWS Control Tower when the landing zone was set up. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

The artifact for this control is the following SCP.

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "GRCONFIGRULEPOLICY",
      "Effect": "Deny",
      "Action": [
        "config:PutConfigRule",
        "config:DeleteConfigRule",
      ],
      "Resource": ["*"],
      "Condition": {
        "ArnNotLike": {
          "aws:PrincipalARN":"arn:aws:iam::*:role/AWSControlTowerExecution"
        }
      }
    }
  ]
}
```
Disallow Changes to AWS IAM Roles Set Up by AWS Control Tower and AWS CloudFormation

This control disallows changes to the AWS IAM roles that AWS Control Tower created when the landing zone was set up. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

Control update

An updated version has been released for the mandatory control AWS-GR_IAM_ROLE_CHANGE_PROHIBITED.

This change to the control is required because accounts in OUs that are being enrolled into AWS Control Tower must have the AWSControlTowerExecution role enabled. The previous version of the control prevents this role from being created.

AWS Control Tower updated the existing control to add an exception so that AWS CloudFormation StackSets can create the AWSControlTowerExecution role. As a second measure, this new control protects the StackSets role to prevent principals in the child account from gaining access.

The new control version performs the following actions, in addition to all actions provided in the previous version:

- Allows the stacksets-exec-* role (owned by AWS CloudFormation) to perform actions on IAM roles that were created by AWS Control Tower.
• Prevents changes to any IAM role in child accounts, where the IAM role name matches the pattern stacksets-exec-*.

The update to the control version affects your OUs and accounts as follows:

• If you extend governance to an OU, that incoming OU receives the updated version of the control as part of the registration process. You do not need to update your landing zone to get the latest version for this OU. AWS Control Tower applies the latest version automatically to OUs that register.

• If you update or repair your landing zone at any time after this release, your control will be updated to this version for future provisioning.

• OUs created in or registered with AWS Control Tower before this release date, and which are part of a landing zone that has not been repaired or updated after the release date, will continue to operate with the old version of the control, which blocks the creation of the AWSControlTowerExecution role.

• One consequence of this control update is that your OUs can be functioning with different versions of the control. Update your landing zone to apply the updated version of the control to your OUs uniformly.

The artifact of the updated control is the following SCP.

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "GRIAMROLEPOLICY",
      "Effect": "Deny",
      "Action": [
        "iam:AttachRolePolicy",
        "iam:CreateRole",
        "iam:DeleteRole",
        "iam:DeleteRolePermissionsBoundary",
        "iam:DeleteRolePolicy",
        "iam:DetachRolePolicy",
        "iam:PutRolePermissionsBoundary",
        "iam:PutRolePolicy",
        "iam:UpdateAssumeRolePolicy",
        "iam:UpdateRole",
```
AWS Control Tower

"iam:UpdateRoleDescription"
],
"Resource": [
    "arn:aws:iam::*:role/aws-controltower-*",
    "arn:aws:iam::*:role/AWSControlTower*
],
"Condition": {
    "ArnNotLike": [
        "aws:PrincipalArn": [
            "arn:aws:iam::*:role/AWSControlTowerExecution",
            "arn:aws:iam::*:role/stacksets-exec-*"    #this line is new
        ]
    ]
}
}
}
}

The former artifact for this control is the following SCP.

[
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRIAMROLEPOLICY",
            "Effect": "Deny",
            "Action": [
                "iam:AttachRolePolicy",
                "iam:CreateRole",
                "iam:DeleteRole",
                "iam:DeleteRolePermissionsBoundary",
                "iam:DeleteRolePolicy",
                "iam:DetachRolePolicy",
                "iam:PutRolePermissionsBoundary",
                "iam:PutRolePolicy",
                "iam:UpdateAssumeRolePolicy",
                "iam:UpdateRole",
                "iam:UpdateRoleDescription"
            ],
            "Resource": [
                "arn:aws:iam::*:role/aws-controltower-*",
                "arn:aws:iam::*:role/*AWSControlTower*"
            ]
        }
    ]
}
Disallow Changes to AWS Lambda Functions Set Up by AWS Control Tower

This control disallows changes to AWS Lambda functions set up by AWS Control Tower. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

The artifact for this control is the following SCP.

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRLAMBDAFUNCTIONPOLICY",
            "Effect": "Deny",
            "Action": [
                "lambda:AddPermission",
                "lambda:CreateEventSourceMapping",
                "lambda:CreateFunction",
                "lambda:DeleteEventSourceMapping",
                "lambda:DeleteFunction",
                "lambda:DeleteFunctionConcurrency",
                "lambda:PutFunctionConcurrency",
                "lambda:RemovePermission",
                "lambda:UpdateEventSourceMapping",
                "lambda:UpdateFunctionCode",
                "lambda:UpdateFunctionConfiguration"
            ],
            "Resource": [
                "arn:aws:lambda::*:*:function:aws-controltower-*"
            ],
            "Condition": {
                "ArnNotLike": {
                    "aws:PrincipalARN":"arn:aws:iam::*:role/AWSControlTowerExecution"
                }
            }
        }
    ]
}
```
Disallow Changes to Amazon SNS Set Up by AWS Control Tower

This control disallows changes to Amazon SNS set up by AWS Control Tower. It protects the integrity of Amazon SNS notification settings for your landing zone. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

The artifact for this control is the following SCP.

```
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "GRSNSTOPICPOLICY",
         "Effect": "Deny",
         "Action": [
            "sns:AddPermission",
            "sns:CreateTopic",
            "sns:DeleteTopic",
            "sns:RemovePermission",
            "sns:SetTopicAttributes"
         ],
         "Resource": [
            "arn:aws:sns:*::*:aws-controltower-*"
         ],
         "Condition": {
            "ArnNotLike": {
               "aws:PrincipalARN":"arn:aws:iam::*:role/AWSControlTowerExecution"
            }
         }
      }
   ]
}
```

Disallow Changes to Amazon SNS Subscriptions Set Up by AWS Control Tower

This control disallows changes to Amazon SNS subscriptions set up by AWS Control Tower. It protects the integrity of Amazon SNS subscriptions settings for your landing zone, to trigger
notifications for AWS Config Rules compliance changes. This is a preventive control with mandatory guidance. By default, this control is enabled in all OUs.

The artifact for this control is the following SCP.

```
{
"Version": "2012-10-17",
"Statement": [
{
  "Sid": "GRSNSSUBSCRIPTIONPOLICY",
  "Effect": "Deny",
  "Action": [
    "sns:Subscribe",
    "sns:Unsubscribe"
  ],
  "Resource": [
    "arn:aws:sns:*:*:aws-controltower-SecurityNotifications"
  ],
  "Condition": {
    "ArnNotLike": {
      "aws:PrincipalARN": "arn:aws:iam::*:role/AWSControlTowerExecution"
    }
  }
}
}
```

**Detect whether shared accounts under the Security organizational unit have AWS CloudTrail or CloudTrail Lake enabled**

This control detects whether shared accounts under the Security organizational unit have AWS CloudTrail or CloudTrail Lake enabled. The rule is NON_COMPLIANT if either CloudTrail or CloudTrail Lake is not enabled in a shared account. This is a detective control with mandatory guidance. By default, this control is enabled on the Security OU.

The artifact for this control is the following AWS Config rule.

```
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to detect whether an account has AWS CloudTrail or CloudTrail Lake enabled.
```

Mandatory controls
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'

Resources:
  CheckForCloudtrailEnabled:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Detects whether an account has AWS CloudTrail or CloudTrail Lake enabled. The rule is NON_COMPLIANT if either CloudTrail or CloudTrail Lake is not enabled in an account.
      Source:
        Owner: AWS
        SourceIdentifier: CLOUD_TRAIL_ENABLED

Proactive controls

Proactive controls are optional controls implemented with AWS CloudFormation hooks. Proactive controls fall into four main Categories.

These controls are referred to as proactive because they check your resources – before the resources are deployed – to determine whether the new resources will comply with the controls that are activated in your environment.

In the AWS Control Tower console, you can view the controls in groups according to their assigned categories, which are:

- **Control objectives**: Specific purposes for implementing controls in your environment.
- **Frameworks**: Industry-standard compliance frameworks.
- **Services**: The AWS services that the control may govern.
- **Groups**: Groups of controls designed to help you meet a specific policy standard.

In this reference guide, the proactive controls are categorized according to their associated AWS services.
You must apply an elective, SCP-based control with the identifier **CT.CLOUDFORMATION.PR.1** before you can activate proactive controls on an OU. See [Disallow management of resource types, modules, and hooks within the AWS CloudFormation registry](https://aws.amazon.com). If this SCP is not activated, you'll see an error message directing you to enable this control as a prerequisite, or showing it as a dependency for other proactive controls.

### Behavior of proactive controls

Proactive controls check resources whenever those resources are created or updated by means of AWS CloudFormation stack operations. Specifically, these proactive controls are implemented as `preCreate` and `preUpdate` AWS CloudFormation hook handlers. As a consequence, these controls may not affect requests that are made directly to services through the AWS console, through AWS APIs, or through other means such as AWS SDKs, or other Infrastructure-as-Code (IaC) tools. For more information about when `preCreate` and `preUpdate` hooks operate, see [AWS CloudFormation hooks](https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-iam-listeners.html).

### Note

Proactive controls evaluate strings passed into the AWS CloudFormation hook within the `targetNames` property. Secure strings and secrets are not resolved before they are sent to the hook, which prevents the proactive control from evaluating the string. For more information about how the `targetNames` are passed to hooks, see [AWS CloudFormation Hooks structure overview](https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-iam-listeners.html).

When you follow an example template to set up a test for a proactive control in your environment, be aware that the template is created to test one specific control only. Other controls may not receive a PASS rating for that template. This behavior is expected. We recommend that you test proactive controls individually before you enable them in your environment.

### Note

It is important to know that some proactive controls in AWS Control Tower do not operate in certain AWS Regions where AWS Control Tower is available, because those Regions do
not support the required underlying functionality for AWS CloudFormation hooks. As a result, when you deploy a proactive control through AWS Control Tower, the control may not be operating in all Regions that you govern with AWS Control Tower. You can view the Regions for each proactive control in the AWS Control Tower console.

Topics

- Amazon API Gateway controls
- AWS Certificate Manager controls
- AWS AppSync controls
- Amazon Athena controls
- Amazon CloudFront controls
- AWS CloudTrail controls
- Amazon CloudWatch controls
- AWS CodeBuild controls
- AWS Database Migration Service (AWS DMS) controls
- Amazon DocumentDB controls
- Amazon DynamoDB controls
- DynamoDB Accelerator controls
- AWS Elastic Beanstalk controls
- Amazon Elastic Compute Cloud (Amazon EC2) controls
- Amazon Elastic Compute Cloud (Amazon EC2) Auto Scaling controls
- Amazon ElastiCache controls
- Amazon Elastic Container Registry controls
- Amazon Elastic Container Service controls
- Amazon Elastic File System controls
- Amazon Elastic Kubernetes Service (EKS) controls
- Elastic Load Balancing controls
- Amazon Elastic Map Reduce (Amazon EMR) controls
- AWS Glue controls
• Amazon GuardDuty controls
• AWS Identity and Access Management (IAM) controls
• AWS Key Management Service (AWS KMS) controls
• Amazon Kinesis controls
• AWS Lambda controls
• Amazon MQ controls
• Amazon Managed Streaming for Apache Kafka (Amazon MSK) controls
• Amazon Neptune controls
• AWS Network Firewall controls
• Amazon OpenSearch controls
• Amazon Relational Database Service (Amazon RDS) controls
• Amazon Redshift controls
• Amazon Simple Storage Service (Amazon S3) controls
• Amazon SageMaker controls
• Amazon Simple Queue Service (Amazon SQS) controls
• AWS Step Functions controls
• AWS WAF regional controls
• AWS WAF controls
• AWS WAFV2 controls

Amazon API Gateway controls

Topics
• [CT.APIGATEWAY.PR.1] Require an Amazon API Gateway REST and WebSocket API to have logging activated
• [CT.APIGATEWAY.PR.2] Require an Amazon API Gateway REST API stage to have AWS X-Ray tracing activated
• [CT.APIGATEWAY.PR.3] Require that an Amazon API Gateway REST API stage has encryption at rest configured for cache data
• [CT.APIGATEWAY.PR.4] Require an Amazon API Gateway V2 stage to have access logging activated
[CT.APIGATEWAY.PR.5] Require Amazon API Gateway V2 Websocket and HTTP routes to specify an authorization type

[CT.APIGATEWAY.PR.6] Require an Amazon API Gateway REST domain to use a security policy that specifies a minimum TLS protocol version of TLSv1.2

[CT.APIGATEWAY.PR.1] Require an Amazon API Gateway REST and WebSocket API to have logging activated

This control checks whether all methods in Amazon API Gateway stage have execution logging configured.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ApiGateway::Stage
- **AWS CloudFormation guard rule:** [CT.APIGATEWAY.PR.1 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.APIGATEWAY.PR.1 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.APIGATEWAY.PR.1 example templates](#)

Explanation

Amazon API Gateway REST or WebSocket API stages should have relevant logs enabled. API Gateway REST and WebSocket API execution logging provides detailed records of requests made to API Gateway REST and WebSocket API stages. The stages include API integration backend responses, Lambda authorizer responses, and the requestId for AWS integration endpoints.

### Usage considerations

- This control requires Amazon API Gateway stages to configure execution logging for all methods and resources (HttpMethod of * and ResourcePath of /*).
Remediation for rule failure

Configure execution logging on Amazon API Gateway stages with a MethodSetting that sets LoggingLevel to ERROR or INFO for all methods (HttpMethod of * and ResourcePath of /*). Ensure that you do not set LoggingLevel to OFF for any method setting.

The examples that follow show how to implement this remediation.

Amazon API Gateway Stage - Example

Amazon API Gateway stage configured with error level execution logging for all methods and resources. The example is shown in JSON and in YAML.

JSON example

```json
{
    "ApiGatewayStage": {
        "Type": "AWS::ApiGateway::Stage",
        "Properties": {
            "StageName": "Sample",
            "Description": "Sample Stage",
            "RestApiId": {
                "Ref": "RestApi"
            },
            "DeploymentId": {
                "Ref": "Deployment"
            },
            "MethodSettings": [
                {
                    "ResourcePath": "/*",
                    "HttpMethod": "*",
                    "LoggingLevel": "ERROR"
                }
            ]
        }
    }
}
```

YAML example

```yaml
Proactive controls
```
ApiGatewayStage:
  Type: AWS::ApiGateway::Stage
  Properties:
    StageName: Sample
    Description: Sample Stage
    RestApiId: !Ref 'RestApi'
    DeploymentId: !Ref 'Deployment'
    MethodSettings:
      - ResourcePath: /*
        HttpMethod: '*'
        LoggingLevel: ERROR

CT.APIGATEWAY.PR.1 rule specification

# ###################################################################
## Rule Specification     ##
# ###################################################################
#
# Rule Identifier:
#   api_gw_v1_execution_logging_enabled_check
#
# Description:
#   This control checks whether all methods in Amazon API Gateway stage have execution
#   logging configured.
#
# Reports on:
#   AWS::ApiGateway::Stage
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#      Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#      And: The input document does not contain any API Gateway stage resources
#      Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an API Gateway stage resource
# And: In the stage resource, 'MethodSettings' is not present or is provided and
# is an empty list.
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an API Gateway stage resource
# And: In the stage resource, Execution Logging is not configured for all HTTP
# Methods and API resources (In
#   'MethodSettings', 'LoggingLevel' is omitted, or not set to 'ERROR' or
#   'INFO', for 'HttpMethod' of '*' and
#   'ResourcePath' of '/*' )
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an API Gateway stage resource
# And: In the stage resource, Execution Logging is configured for all HTTP
# Methods and API resources (In
#   'MethodSettings', 'LoggingLevel' is set to 'ERROR' or 'INFO', for
#   'HttpMethod' of '*' and
#   'ResourcePath' of '/*' )
# And: 'LoggingLevel' has been set to 'OFF' for any other Method Setting
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an API Gateway stage resource
# And: In the stage resource, Execution Logging is configured for all HTTP
# Methods and API resources (In
#   'MethodSettings', 'LoggingLevel' is set to 'ERROR' or 'INFO', for
#   'HttpMethod' of '*' and
#   'ResourcePath' of '/*' )
# And: 'LoggingLevel' has not been provided or set to 'ERROR' or 'INFO' for all
# other Method Settings
# Then: PASS

#
# Constants
#
let API_GW_STAGE_TYPE = "AWS::ApiGateway::Stage"
let INPUT_DOCUMENT = this
let VALID_LOG_LEVELS = [ "ERROR", "INFO" ]

#
# Assignments
#
let api_gateway_stages = Resources.*[ Type == %API_GW_STAGE_TYPE ]

#
# Primary Rules
#
rule api_gw_v1_execution_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%api_gateway_stages not empty {
    check(%api_gateway_stages.Properties)
    <<
    [CT.APIGATEWAY.PR.1]: Require an Amazon API Gateway REST and WebSocket API to have logging activated
    [FIX]: Configure execution logging on Amazon API Gateway stages with a 'MethodSetting' that sets 'LoggingLevel' to 'ERROR' or 'INFO' for all methods ('HttpMethod' of '*' and 'ResourcePath' of '/**'). Ensure that you do not set 'LoggingLevel' to 'OFF' for any method setting.
    >>
}

rule api_gw_v1_execution_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %API_GW_STAGE_TYPE) {
    check(%INPUT_DOCUMENT.%API_GW_STAGE_TYPE.resourceProperties)
    <<
    [CT.APIGATEWAY.PR.1]: Require an Amazon API Gateway REST and WebSocket API to have logging activated
    [FIX]: Configure execution logging on Amazon API Gateway stages with a 'MethodSetting' that sets 'LoggingLevel' to 'ERROR' or 'INFO' for all methods ('HttpMethod' of '*' and 'ResourcePath' of '/**'). Ensure that you do not set 'LoggingLevel' to 'OFF' for any method setting.
    >>
}

#
# Parameterized Rules
#
rule check(api_gateway_stage) {
    %api_gateway_stage {
        # Scenario 2
MethodSettings exists
MethodSettings is_list
MethodSettings not empty

# Scenario 3
# At least one wildcard entry exists with valid logging enabled
some MethodSettings[*] {
    HttpMethod exists
    ResourcePath exists
    LoggingLevel exists

    HttpMethod == "*"
    ResourcePath == "/*"
    LoggingLevel in %VALID_LOG_LEVELS
}

# Scenario 4, 5
# When other methods explicitly set/override logging settings, ensure that
# logging is not disabled
MethodSettings[*] {
    when LoggingLevel exists {
       .LoggingLevel in %VALID_LOG_LEVELS
    }
}
CT.APIGATEWAY.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  RestApi:
    Type: AWS::ApiGateway::RestApi
    Properties:
      Name: ExampleRestApi
  GetMethod:
    DependsOn: PutMethod
    Type: AWS::ApiGateway::Method
    Properties:
      HttpMethod: GET
      RestApiId:
        Ref: RestApi
      ResourceId:
        Fn::GetAtt:
          - "RestApi"
          - "RootResourceId"
      AuthorizationType: NONE
      MethodResponses:
        - StatusCode: "200"
      Integration:
        Type: MOCK
  PutMethod:
    Type: AWS::ApiGateway::Method
    Properties:
      HttpMethod: PUT
      RestApiId:
        Ref: RestApi
      ResourceId:
        Fn::GetAtt:
          - "RestApi"
          - "RootResourceId"
      AuthorizationType: NONE
      MethodResponses:
        - StatusCode: "200"
      Integration:
        Type: MOCK
```
Deployment:
  DependsOn: GetMethod
  Type: 'AWS::ApiGateway::Deployment'
  Properties:
    RestApiId:
      Ref: RestApi

ApiGatewayStage:
  Type: AWS::ApiGateway::Stage
  Properties:
    StageName: Example
    RestApiId:
      Ref: RestApi
    DeploymentId:
      Ref: Deployment
    MethodSettings:
      - ResourcePath: "/*"
        HttpMethod: "*"
        LogLevel: ERROR
      - ResourcePath: "/"
        HttpMethod: GET
        LogLevel: INFO

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  RestApi:
    Type: AWS::ApiGateway::RestApi
    Properties:
      Name: ExampleRestApi
  GetMethod:
    DependsOn: PutMethod
    Type: AWS::ApiGateway::Method
    Properties:
      HttpMethod: GET
      RestApiId:
        Ref: RestApi
      ResourceId:
        Fn::GetAtt:
        - "RestApi"
[CT.APIGATEWAY.PR.2] Require an Amazon API Gateway REST API stage to have AWS X-Ray tracing activated

This control ensures that AWS X-Ray tracing is enabled on Amazon API Gateway REST APIs.
- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ApiGateway::Stage
- **AWS CloudFormation guard rule:** [CT.APIGATEWAY.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.APIGATEWAY.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.APIGATEWAY.PR.2 example templates](#)

Explanation

AWS X-Ray active tracing enables a more rapid response to performance changes in the underlying infrastructure. Changes in performance could result in a lack of availability of the API. X-Ray active tracing provides real-time metrics of user requests that flow through your API Gateway REST API operations and connected services.

**Remediation for rule failure**

Set `TracingEnabled` to `true`.

The examples that follow show how to implement this remediation.

**Amazon API Gateway Stage - Example**

Amazon API Gateway stage configured with AWS X-Ray tracing enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ApiGatewayStage": {
        "Type": "AWS::ApiGateway::Stage",
        "Properties": {
            "StageName": "Sample",
            "Description": "Sample Stage",
```
"TracingEnabled": true,
"RestApiId": {
  "Ref": "RestApi"
},
"DeploymentId": {
  "Ref": "Deployment"
}
}

**YAML example**

```yaml
ApiGatewayStage:
  Type: AWS::ApiGateway::Stage
  Properties:
    StageName: Sample
    Description: Sample Stage
    TracingEnabled: true
    RestApiId: !Ref 'RestApi'
    DeploymentId: !Ref 'Deployment'
```

**CT.APIGATEWAY.PR.2 rule specification**

```
# #################################################################
##       Rule Specification        
# #################################################################
# Rule Identifier:    
# api_gw_xray_enabled_check    
# Description:    
# This control ensures that AWS X-Ray tracing is enabled on Amazon API Gateway REST APIs.    
# Reports on:    
# AWS::ApiGateway::Stage    
```

Proactive controls
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#            And: The input document does not contain any API Gateway stage resources
#            Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#            And: The input document contains an API Gateway stage resource
#            And: 'TracingEnabled' is not present on the API Gateway stage
#            Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#            And: The input document contains an API Gateway stage resource
#            And: 'TracingEnabled' is present on the API Gateway stage and is set to bool(false)
#            Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#            And: The input document contains an API Gateway stage resource
#            And: 'TracingEnabled' is present on the API Gateway stage and is set to bool(true)
#            Then: PASS
#
# Constants
#
let API_GW_STAGE_TYPE = "AWS::ApiGateway::Stage"
let INPUT_DOCUMENT = this
#
# Assignments
#
let api_gateway_stages = Resources.*[ Type == %API_GW_STAGE_TYPE ]
# Primary Rules

rule api_gw_xray_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
    %api_gateway_stages not empty {
    check(%api_gateway_stages.Properties)
    <<
    [CT.APIGATEWAY.PR.2]: Require an Amazon API Gateway REST API stage to have AWS X-Ray tracing activated
    [FIX]: Set 'TracingEnabled' to 'true'.
    >>
}

rule api_gw_xray_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %API_GW_STAGE_TYPE) {
    check(%INPUT_DOCUMENT.%API_GW_STAGE_TYPE.resourceProperties)
    <<
    [CT.APIGATEWAY.PR.2]: Require an Amazon API Gateway REST API stage to have AWS X-Ray tracing activated
    [FIX]: Set 'TracingEnabled' to 'true'.
    >>
}

# Parameterized Rules

rule check(api_gateway_stage) {
    %api_gateway_stage {
        # Scenario 2, 3, 4
        TracingEnabled exists
        TracingEnabled == true
    }
}

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
%doc.%RESOURCE_TYPE.resourceProperties exists
}

**CT.APIGATEWAY.PR.2 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

```json
Resources:
  RestApi:
    Type: AWS::ApiGateway::RestApi
    Properties:
      Name: Testing
  GetMethod:
    DependsOn: PutMethod
    Type: AWS::ApiGateway::Method
    Properties:
      HttpMethod: GET
      RestApiId:
        Ref: RestApi
      ResourceId:
        Fn::GetAtt:
          - "RestApi"
          - "RootResourceId"
      AuthorizationType: NONE
      MethodResponses:
        - StatusCode: "200"
      Integration:
        Type: MOCK
  PutMethod:
    Type: AWS::ApiGateway::Method
    Properties:
      HttpMethod: PUT
      RestApiId:
        Ref: RestApi
      ResourceId:
        Fn::GetAtt:
          - "RestApi"
```

Proactive controls
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  RestApi:
    Type: AWS::ApiGateway::RestApi
    Properties:
      Name: Testing
  GetMethod:
    DependsOn: PutMethod
    Type: AWS::ApiGateway::Method
    Properties:
      HttpMethod: GET
      RestApiId:
        Ref: RestApi
      ResourceId:
        Fn::GetAtt:
- "RestApi"
- "RootResourceId"
AuthorizationType: NONE
MethodResponses:
- StatusCode: "200"
Integration:
  Type: MOCK
PutMethod:
  Type: AWS::ApiGateway::Method
Properties:
  HttpMethod: PUT
  RestApiId:
    Ref: RestApi
  ResourceId:
    Fn::GetAtt:
      - "RestApi"
      - "RootResourceId"
AuthorizationType: NONE
MethodResponses:
- StatusCode: "200"
Integration:
  Type: MOCK
Deployment:
  DependsOn: GetMethod
  Type: 'AWS::ApiGateway::Deployment'
Properties:
  RestApiId:
    Ref: RestApi
ApiGatewayStage:
  Type: AWS::ApiGateway::Stage
Properties:
  StageName: Dev
  Description: Dev Stage
  TracingEnabled: false
  RestApiId:
    Ref: RestApi
  DeploymentId:
    Ref: Deployment

Proactive controls
[CT.APIGATEWAY.PR.3] Require that an Amazon API Gateway REST API stage has encryption at rest configured for cache data

This control checks whether an Amazon API Gateway REST API stage that has caching enabled also encrypts the caches.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ApiGateway::Stage
- **AWS CloudFormation guard rule:** [CT.APIGATEWAY.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.APIGATEWAY.PR.3 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.APIGATEWAY.PR.3 example templates](#)

**Explanation**

Encrypting data at rest reduces the risk that data stored on disk may be accessible by a user not authenticated to AWS. It adds another set of access controls to limit unauthorized users' ability to obtain the data. For example, API permissions are required to decrypt the data before it can be read.

For an added layer of security, API Gateway REST API caches should be encrypted at rest.

**Usage considerations**

- This control applies only to API Gateway stage resources with cache clustering enabled.
- Where cache clustering is enabled, this control requires cache encryption to be enabled for all resources and methods by specifying a MethodSetting entry with an HttpMethod of * and ResourcePath of /*.
Remediation for rule failure

Configure encryption on API Gateway caches with a MethodSetting that sets CacheDataEncrypted to true for all methods (HttpMethod of * and ResourcePath of /*). Ensure that you do not set CacheDataEncrypted to false for any method setting.

The examples that follow show how to implement this remediation.

API Gateway stage examples

This example shows the API Gateway stage configured to encrypt cache data for all methods (HttpMethod of * and ResourcePath of /*). The example is shown in JSON and in YAML.

JSON example

```json
{
    "ApiGatewayStage": {
        "Type": "AWS::ApiGateway::Stage",
        "Properties": {
            "StageName": "Dev",
            "Description": "Development Stage",
            "CacheClusterEnabled": true,
            "CacheClusterSize": 0.5,
            "RestApiId": {
                "Ref": "RestApi"
            },
            "DeploymentId": {
                "Ref": "Deployment"
            },
            "MethodSettings": [
                {
                    "ResourcePath": "/*",
                    "HttpMethod": "*",
                    "CacheDataEncrypted": true
                },
                {
                    "ResourcePath": "/",
                    "HttpMethod": "POST"
                }
            ]
        }
    }
}
```
YAML example

ApiGatewayStage:
  Type: AWS::ApiGateway::Stage
  Properties:
    StageName: Dev
    Description: Development Stage
    CacheClusterEnabled: true
    CacheClusterSize: 0.5
    RestApiId: !Ref 'RestApi'
    DeploymentId: !Ref 'Deployment'
  MethodSettings:
    - ResourcePath: /*
      HttpMethod: '*'
      CacheDataEncrypted: true
    - ResourcePath: /
      HttpMethod: POST

CT-APIGATEWAY.PR.3 rule specification

# ####################################################################
## Rule Specification       ##
# ####################################################################

# Rule Identifier:
#   api_gw_cache_encrypted_check
#
# Description:
#   This rule checks whether Amazon API Gateway REST API stages that have caching enabled also encrypt the caches.
#
# Reports on:
#   AWS::ApiGateway::Stage
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document does not contain any Amazon API Gateway stage resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an Amazon API Gateway stage resource
#     And: 'CacheClusterEnabled' is not set, or is set to bool(false) on the API Gateway stage resource
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an Amazon API Gateway stage resource
#     And: 'CacheClusterEnabled' is set to bool(true) on the API Gateway stage resource
#     And: In the Stage resource, 'MethodSettings' is not present or is provided and is an empty list.
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an Amazon API Gateway stage resource
#     And: 'CacheClusterEnabled' is set to bool(true) on the API Gateway stage resource
#     And: In the stage resource, cache data encryption is not enabled for all HTTP methods and API resources (In
#          'MethodSettings', 'CacheDataEncrypted' is omitted or set to bool(false) for
#          'HttpMethod' of '*' and
#          'ResourcePath' of '/*' )
#     Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an API Gateway stage resource
#     And: 'CacheClusterEnabled' is set to bool(true) on the API Gateway stage resource
And: In the stage resource, cache data encryption is configured for all 'MethodSettings' (CacheDataEncrypted is bool(true) for 'HttpMethod' of '*' and 'ResourcePath' of '/*')
And: 'CacheDataEncrypted' has been set to bool(false) for any other method settings
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains an API Gateway stage resource
And: 'CacheClusterEnabled' is set to bool(true) on the API Gateway stage resource
And: In the stage resource cache data encryption is configured for all 'MethodSettings' (CacheDataEncrypted is bool(true) for 'HttpMethod' of '*' and 'ResourcePath' of '/*')
And: 'CacheDataEncrypted' has not been provided or set to bool(true) for all other method settings
Then: PASS

# Constants
let API_GW_STAGE_TYPE = "AWS::ApiGateway::Stage"
let INPUT_DOCUMENT = this

# Assignments
let api_gateway_stages = Resources.*[ Type == %API_GW_STAGE_TYPE ]

# Primary Rules
rule api_gw_cache_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
%api_gateway_stages not empty {
  check(%api_gateway_stages.Properties)
  check(
    [CT.APIGATEWAY.PR.3]: Require that an Amazon API Gateway REST API stage has encryption at rest configured for cache data
    [FIX]: Configure encryption on API Gateway caches with a 'MethodSetting' that sets 'CacheDataEncrypted' to true for all methods ('HttpMethod' of '*' and 'ResourcePath' of '/*'). Ensure that you do not set 'CacheDataEncrypted' to false for any method setting.
  )
}
rule api_gw_cache_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %API_GW_STAGE_TYPE) {
    check(%INPUT_DOCUMENT.%API_GW_STAGE_TYPE.resourceProperties)
    <<
        [CT.APIGATEWAY.PR.3]: Require that an Amazon API Gateway REST API stage has encryption at rest configured for cache data
        [FIX]: Configure encryption on API Gateway caches with a 'MethodSetting' that sets 'CacheDataEncrypted' to true for all methods ('HttpMethod' of '*') and 'ResourcePath' of '/**'). Ensure that you do not set 'CacheDataEncrypted' to false for any method setting.
    >>
}

# Parameterized Rules

# rule check(api_gateway_stage) {
%api_gateway_stage [CacheClusterEnabled exists CacheClusterEnabled == true] {
    # Scenario 2, 3, 4, 6
    cache_encrypted(this)
}
}

rule cache_encrypted(api_gateway_stage) {
%api_gateway_stage {
    MethodSettings exists
    MethodSettings is_list
    MethodSettings not empty

    some MethodSettings[*] {
        HttpMethod exists
        ResourcePath exists
        CacheDataEncrypted exists

        HttpMethod == "*
        ResourcePath == "/**
        CacheDataEncrypted == true
    }
}
MethodSettings[*] {
    when CacheDataEncrypted exists {
        CacheDataEncrypted == true
    }
}
}
}
#
# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

**CT.APIGATEWAY.PR.3 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

<table>
<thead>
<tr>
<th>Resources:</th>
</tr>
</thead>
<tbody>
<tr>
<td>RestApi:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Type: AWS::ApiGateway::RestApi</td>
</tr>
<tr>
<td>Properties:</td>
</tr>
<tr>
<td>Name: ExampleRestApi</td>
</tr>
<tr>
<td>GetMethod:</td>
</tr>
<tr>
<td>DependsOn: PutMethod</td>
</tr>
<tr>
<td>Type: AWS::ApiGateway::Method</td>
</tr>
<tr>
<td>Properties:</td>
</tr>
<tr>
<td>HttpMethod: GET</td>
</tr>
<tr>
<td>RestApiId:</td>
</tr>
<tr>
<td>Ref: RestApi</td>
</tr>
</tbody>
</table>

Proactive controls
ResourceId:
  Fn::GetAtt:
    - "RestApi"
    - "RootResourceId"
AuthorizationType: NONE
MethodResponses:
  - StatusCode: "200"
Integration:
  Type: MOCK
PutMethod:
  Type: AWS::ApiGateway::Method
Properties:
  HttpMethod: PUT
RestApiId:
  Ref: RestApi
ResourceId:
  Fn::GetAtt:
    - "RestApi"
    - "RootResourceId"
AuthorizationType: NONE
MethodResponses:
  - StatusCode: "200"
Integration:
  Type: MOCK
Deployment:
  DependsOn: GetMethod
  Type: 'AWS::ApiGateway::Deployment'
Properties:
  RestApiId:
    Ref: RestApi
ApiGatewayStage:
  Type: AWS::ApiGateway::Stage
Properties:
  StageName: Example
  Description: Example Stage
  CacheClusterEnabled: true
  CacheClusterSize: 0.5
RestApiId:
  Ref: RestApi
DeploymentId:
  Ref: Deployment
MethodSettings:
  - ResourcePath: "/*"
    HttpMethod: "*"
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
RestApi:
  Type: AWS::ApiGateway::RestApi
  Properties:
    Name: ExampleRestApi
GetMethod:
  DependsOn: PutMethod
  Type: AWS::ApiGateway::Method
  Properties:
    HttpMethod: GET
    RestApiId:
      Ref: RestApi
    ResourceId:
      Fn::GetAtt:
        - "RestApi"
        - "RootResourceId"
    AuthorizationType: NONE
    MethodResponses:
      - StatusCode: "200"
PutMethod:
  Type: AWS::ApiGateway::Method
  Properties:
    HttpMethod: PUT
    RestApiId:
      Ref: RestApi
    ResourceId:
      Fn::GetAtt:
        - "RestApi"
        - "RootResourceId"
    AuthorizationType: NONE
    MethodResponses:
[CT.APIGATEWAY.PR.4] Require an Amazon API Gateway V2 stage to have access logging activated

This control checks whether Amazon API Gateway V2 stages have access logging enabled. Access logging is supported for HTTP and WebSocket APIs.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ApiGatewayV2::Stage
- **AWS CloudFormation guard rule:** [CT.APIGATEWAY.PR.4 rule specification](https://aws.amazon.com/blogs/aws/acls/conformance-control-guard-rule-ct-api-gateway-pr-4/)

Details and examples
• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: 
  CT.APIGATEWAY.PR.4 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: 
  CT.APIGATEWAY.PR.4 example templates

Explanation

Access logging allows you to log who has called your API and how the caller gained access to the API. You can create your own log group or choose an existing log group that could be managed by API Gateway.

Remediation for rule failure

Provide an AccessLogSettings configuration, setting DestinationArn to the ARN of an Amazon CloudWatch log group and Format to a single line log format configuration.

The examples that follow show how to implement this remediation.

Amazon API Gateway HTTP API Stage - Example

Amazon API Gateway HTTP API stage configured to send API access logs to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

JSON example

```json
{
   "HttpApiStage": {
      "Type": "AWS::ApiGatewayV2::Stage",
      "Properties": {
         "StageName": "SampleStage",
         "Description": "Sample Stage",
         "ApiId": {
            "Ref": "HttpApi"
         },
         "AccessLogSettings": {
            "DestinationArn": {
               "Fn::GetAtt": [
                  "LogGroup",
                  "Arn"
               ]
            }
         }
      }
   }
}
```
YAML example

HttpApiStage:
  Type: AWS::ApiGatewayV2::Stage
  Properties:
    StageName: SampleStage
    Description: Sample Stage
    ApiId: !Ref 'HttpApi'
    AccessLogSettings:
      DestinationArn: !GetAtt 'LogGroup.Arn'
      Format: '{"requestId":"$context.requestId", "ip": "$context.identity.sourceIp", "user": "$context.identity.user","requestTime": "$context.requestTime"}'

CT.APIGATEWAY.PR.4 rule specification

# #####################################################################
##       Rule Specification       ##
#####################################################################
#
# Rule Identifier:
#   api_gw_v2_access_logs_enabled_check
#
# Description:
#  This control checks whether Amazon API Gateway V2 stages have access logging enabled. Access logging is supported for HTTP and WebSocket APIs.
#
# Reports on:
#  AWS::ApiGatewayV2::Stage
#
# Evaluates:

Proactive controls
# AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any APIGatewayV2 stage resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an APIGatewayV2 stage resource
# And: 'AccessLogSettings' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an APIGatewayV2 stage resource
# And: 'AccessLogSettings' has been provided
# And: 'AccessLogSettings.DestinationArn' has not been provided, or has been provided as an empty string or invalid local reference
# And: 'AccessLogSettings.Format' is provided as a non-empty string
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an APIGatewayV2 stage resource
# And: 'AccessLogSettings' has been provided
# And: 'AccessLogSettings.DestinationArn' is provided as a non-empty string or valid local reference
# And: 'AccessLogSettings.Format' has not been provided, or is an empty string
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an APIGatewayV2 stage resource
# And: 'AccessLogSettings' has been provided
# And: 'AccessLogSettings.DestinationArn' is provided as a non-empty string or valid local reference
# And: 'AccessLogSettings.Format' is provided as a non-empty string
Then: PASS

# Constants
#
let API_GW_V2_STAGE_TYPE = "AWS::ApiGatewayV2::Stage"
let INPUT_DOCUMENT = this
#
# Assignments
#
let api_gateway_v2_stages = Resources.*[ Type == %API_GW_V2_STAGE_TYPE ]
#
# Primary Rules
#
rule api_gw_v2_access_logs_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
  %api_gateway_v2_stages not empty {
    check(%api_gateway_v2_stages.Properties)
    <<
    [CT.APIGATEWAY.PR.4]: Require an Amazon API Gateway V2 stage to have access
    logging activated
    [FIX]: Provide an 'AccessLogSettings' configuration, setting
    'DestinationArn' to the ARN of an Amazon CloudWatch log group and 'Format' to a single
    line log format configuration.
    >>
  }

rule api_gw_v2_access_logs_enabled_check when is_cfn_hook(%INPUT_DOCUMENT,
  %API_GW_V2_STAGE_TYPE) {
  check(%INPUT_DOCUMENT.%API_GW_V2_STAGE_TYPE.resourceProperties)
  <<
  [CT.APIGATEWAY.PR.4]: Require an Amazon API Gateway V2 stage to have access
  logging activated
  [FIX]: Provide an 'AccessLogSettings' configuration, setting
  'DestinationArn' to the ARN of an Amazon CloudWatch log group and 'Format' to a single
  line log format configuration.
  >>
}

# Parameterized Rules
#
rule check(api_gateway_v2_stage) {
%api_gateway_v2_stage {
    # Scenario 2
    AccessLogSettings exists
    AccessLogSettings is_struct

    AccessLogSettings {
        # Scenario 3
        DestinationArn exists
        check_is_string_and_not_empty(DestinationArn) or
        check_local_references(%INPUT_DOCUMENT, DestinationArn,
        "AWS::Logs::LogGroup")

        # Scenario 4, 5
        Format exists
        check_is_string_and_not_empty(Format)
    }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
CT.APIGATEWAY.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  LogGroup:
    Type: AWS::Logs::LogGroup
    Properties:
      RetentionInDays: 7
  HttpApi:
    Type: AWS::ApiGatewayV2::Api
    Properties:
      Name: ExampleApi
      ProtocolType: HTTP
  HttpApiStage:
    Type: 'AWS::ApiGatewayV2::Stage'
    Properties:
      StageName: ExampleStage
      Description: Example Stage
    ApiId:
      Ref: HttpApi
    AccessLogSettings:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
HttpApi:
  Type: AWS::ApiGatewayV2::Api
  Properties:
    Name: ExampleApi
    ProtocolType: HTTP
HttpApiStage:
  Type: 'AWS::ApiGatewayV2::Stage'
  Properties:
    StageName: ExampleStage
    Description: Example Stage
  ApiId:
    Ref: HttpApi

[CT.APIGATEWAY.PR.5] Require Amazon API Gateway V2 Websocket and HTTP routes to specify an authorization type

This control checks whether Amazon API Gateway V2 API routes have an authorization type set.

- **Control objective**: Use strong authentication
- **Implementation**: AWS CloudFormation guard rule
- **Control behavior**: Proactive
- **Resource types**: AWS::ApiGatewayV2::Route, AWS::ApiGatewayV2::ApiGatewayManagedOverrides
- **AWS CloudFormation guard rule**: [CT.APIGATEWAY.PR.5 rule specification](#)
Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.APIGATEWAY.PR.5 rule specification
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: CT.APIGATEWAY.PR.5 example templates

Explanation

API Gateway supports multiple mechanisms for controlling and managing access to your Websocket or HTTP API. By specifying an authorization type, you can restrict access to your API, to allow only required users or processes.

Usage considerations

- This control applies only to routes created by means of the AWS::ApiGatewayV2::Route resource, and to managed overrides that apply to HTTP API routes that are created through quick create.
- This control does not evaluate HTTP API routes imported using the Body or BodyS3Location properties of AWS::ApiGatewayV2::API resources.

Remediation for rule failure

For Amazon API Gateway V2 routes, set AuthorizationType to AWS_IAM, JWT or CUSTOM.
For Amazon API Gateway V2 managed route overrides with AuthorizationType, set AuthorizationType to AWS_IAM, JWT or CUSTOM.

The examples that follow show how to implement this remediation.

Amazon API Gateway V2 Route - Example

Amazon API Gateway V2 route configured with AWS IAM authorization. The example is shown in JSON and in YAML.

JSON example

```json
{
    "ApiGatewayV2Route": {
```
"Type": "AWS::ApiGatewayV2::Route",
"Properties": {
  "ApiId": {
    "Ref": "WebsocketApi"
  },
  "RouteKey": "$connect",
  "AuthorizationType": "AWS_IAM"
}
}

YAML example

ApiGatewayV2Route:
  Type: AWS::ApiGatewayV2::Route
  Properties:
    ApiId: !Ref 'WebsocketApi'
    RouteKey: $connect
    AuthorizationType: AWS_IAM

The examples that follow show how to implement this remediation.

Amazon API Gateway V2 Managed Overrides - Example

Amazon API Gateway V2 managed overrides configured with AWS IAM authorization. The example is shown in JSON and in YAML.

JSON example

{
  "ApiGatewayManagedOverride": {
    "Type": "AWS::ApiGatewayV2::ApiGatewayManagedOverrides",
    "Properties": {
      "ApiId": {
        "Ref": "HttpApi"
      },
      "Route": {
        "AuthorizationType": "AWS_IAM"
YAML example

ApiGatewayManagedOverride:
    Type: AWS::ApiGatewayV2::ApiGatewayManagedOverrides
    Properties:
      ApiId: !Ref 'HttpApi'
      Route:
        AuthorizationType: AWS_IAM

CT.APIGATEWAY.PR.5 rule specification

# ****************************
##       Rule Specification   ##
# ****************************
#
# Rule Identifier:
#   api_gw_v2_authorization_type_configured_check
#
# Description:
#   This control checks whether Amazon API Gateway V2 API routes have an authorization type set.
#
# Reports on:
#   AWS::ApiGatewayV2::Route, AWS::ApiGatewayV2::ApiGatewayManagedOverrides
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Amazon API Gateway V2 route or managed route overrides resources
#     Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Amazon API Gateway V2 managed route overrides resource
#     And: In 'Route', 'AuthorizationType' has not been provided
#     Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Amazon API Gateway V2 route resource
#     And: 'AuthorizationType' has not been provided
#     Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Amazon API Gateway V2 route or managed route overrides resource
#     And: 'AuthorizationType' has not been provided and set to a value other than 'AWS_IAM', 'JWT' or 'CUSTOM'
#     Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Amazon API Gateway V2 route or managed route overrides resource
#     And: 'AuthorizationType' has been provided and set to a value of 'AWS_IAM', 'JWT' or 'CUSTOM'
#     Then: PASS

#
# Constants
#
let API_GW_ROUTE_TYPE = "AWS::ApiGatewayV2::Route"
let API_GW_MANAGED_OVERRIDE_TYPE = "AWS::ApiGatewayV2::ApiGatewayManagedOverrides"
let ALLOWED_AUTHORIZATION_TYPES = ["AWS_IAM", "JWT", "CUSTOM"]
let INPUT_DOCUMENT = this
let api_route = Resources.*[ Type == %API_GW_ROUTE_TYPE ]
let api_override = Resources.*[ Type == %API_GW_MANAGED_OVERRIDE_TYPE ]

rule api_gw_v2_authorization_type_configured_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %api_route not empty {
    check_api_route(%api_route.Properties)
    <<
    [CT.APIGATEWAY.PR.5]: Require Amazon API Gateway V2 Websocket and HTTP routes to specify an authorization type
    [FIX]: For Amazon API Gateway V2 routes, set 'AuthorizationType' to 'AWS_IAM', 'JWT' or 'CUSTOM'. For Amazon API Gateway V2 managed route overrides with 'AuthorizationType', set 'AuthorizationType' to 'AWS_IAM', 'JWT' or 'CUSTOM'.
    >>
}

rule api_gw_v2_authorization_type_configured_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %api_override not empty {
    check_api_override(%api_override.Properties)
    <<
    [CT.APIGATEWAY.PR.5]: Require Amazon API Gateway V2 Websocket and HTTP routes to specify an authorization type
    [FIX]: For Amazon API Gateway V2 routes, set 'AuthorizationType' to 'AWS_IAM', 'JWT' or 'CUSTOM'. For Amazon API Gateway V2 managed route overrides with 'AuthorizationType', set 'AuthorizationType' to 'AWS_IAM', 'JWT' or 'CUSTOM'.
    >>
}

rule api_gw_v2_authorization_type_configured_check when
  is_cfn_hook(%INPUT_DOCUMENT, %API_GW_ROUTE_TYPE) {
    check_api_route(%INPUT_DOCUMENT.%API_GW_ROUTE_TYPE.resourceProperties)
    <<
    [CT.APIGATEWAY.PR.5]: Require Amazon API Gateway V2 Websocket and HTTP routes to specify an authorization type
    [FIX]: For Amazon API Gateway V2 routes, set 'AuthorizationType' to 'AWS_IAM', 'JWT' or 'CUSTOM'. For Amazon API Gateway V2 managed route overrides with 'AuthorizationType', set 'AuthorizationType' to 'AWS_IAM', 'JWT' or 'CUSTOM'.
    >>
}
rule api_gw_v2_authorization_type_configured_check when is_cfn_hook(%INPUT_DOCUMENT, %API_GW_MANAGED_OVERRIDE_TYPE) {
    check_api_override(%INPUT_DOCUMENT, %API_GW_MANAGED_OVERRIDE_TYPE.resourceProperties)
    [CT.APIGATEWAY.PR.5]: Require Amazon API Gateway V2 Websocket and HTTP routes to specify an authorization type
    [FIX]: For Amazon API Gateway V2 routes, set 'AuthorizationType' to 'AWS_IAM', 'JWT' or 'CUSTOM'. For Amazon API Gateway V2 managed route overrides with 'AuthorizationType', set 'AuthorizationType' to 'AWS_IAM', 'JWT' or 'CUSTOM'.
}

# # Parameterized Rules #
rule check_api_route(api_route) {
    %api_route {
        # Scenario 3
        AuthorizationType exists
        # Scenario 4 and 5
        AuthorizationType in %ALLOWED_AUTHORIZATION_TYPES
    }
}

rule check_api_override(api_override) {
    %api_override [
        # Scenario 2
        Route exists
        Route is_struct
        Route {
            AuthorizationType exists
        }
    ]{
        check_api_route(Route)
    }
}

# # Utility Rules #
CT.APIGATEWAY.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
ApiGatewayV2Route:
  Type: AWS::ApiGatewayV2::Route
  Properties:
    ApiId: a1bcdef2gh
    RouteKey: $connect
    AuthorizationType: AWS_IAM

PASS Example - Use this template to verify a compliant resource creation.

Resources:
ApiGatewayManagedOverride:
  Type: AWS::ApiGatewayV2::ApiGatewayManagedOverrides
  Properties:
    ApiId: a1bcdef2gh
    Route:
      AuthorizationType: AWS_IAM
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ApiGatewayV2Route:
  Type: AWS::ApiGatewayV2::Route
  Properties:
    ApiId: a1bcdef2gh
    RouteKey: $connect
    AuthorizationType: NONE

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ApiGatewayManagedOverride:
  Type: AWS::ApiGatewayV2::ApiGatewayManagedOverrides
  Properties:
    ApiId: a1bcdef2gh
    Route:
      AuthorizationType: NONE

[CT.APIGATEWAY.PR.6] Require an Amazon API Gateway REST domain to use a security policy that specifies a minimum TLS protocol version of TLSv1.2

This control checks whether an Amazon API Gateway REST API domain name requires a minimum Transport Layer Security protocol version of TLSv1.2 by means of its security policy.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ApiGateway::DomainName
• **AWS CloudFormation guard rule:** [CT.APIGATEWAY.PR.6 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.APIGATEWAY.PR.6 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.APIGATEWAY.PR.6 example templates](#)

**Explanation**

The TLS protocol addresses network security problems, such as tampering and eavesdropping between a client and server. When your clients establish a TLS handshake to your API through the custom domain, you can choose a minimum Transport Layer Security (TLS) protocol version. This version is enforced for your Amazon API Gateway custom domain by setting a security policy, which is a predefined combination of minimum TLS version and cipher suite offered by Amazon API Gateway.

**Usage considerations**

- TLS protocol versions and ciphers used by Amazon API Gateway security policies depend on the type of API Gateway endpoint in use. For more about supported TLS protocol versions and ciphers for each endpoint type, review the Amazon API Gateway documentation.

**Remediation for rule failure**

Set the value of SecurityPolicy to TLS_1_2, or to adopt the default value, do not provide a value for SecurityPolicy.

The examples that follow show how to implement this remediation.

**Amazon API Gateway Domain Name - Example**

An Amazon API Gateway regional domain name configured with a security policy that requires a minimum of TLSv1.2 for API client connections. The example is shown in JSON and in YAML.

**JSON example**
```json
{
    "DomainName": {
        "Type": "AWS::ApiGateway::DomainName",
        "Properties": {
            "DomainName": "example.com",
            "RegionalCertificateArn": {
                "Ref": "AcmCertificate"
            },
            "EndpointConfiguration": {
                "Types": [
                    "REGIONAL"
                ],
                "SecurityPolicy": "TLS_1_2"
            }
        }
    }
}
```

**YAML example**

DomainName:
  Type: AWS::ApiGateway::DomainName
  Properties:
    DomainName: example.com
    RegionalCertificateArn: !Ref 'AcmCertificate'
    EndpointConfiguration:
      Types:
      - REGIONAL
    SecurityPolicy: TLS_1_2

**CT.APIGATEWAY.PR.6 rule specification**

```
# #################################################################
##       Rule Specification       ##
# #################################################################
```

Proactive controls
# Rule Identifier:
#   api_gw_domain_tls_check
#
# Description:
#   This control checks whether an Amazon API Gateway REST API domain name requires a
#   minimum Transport Layer Security protocol version of TLSv1.2 by means of its security
#   policy.
#
# Reports on:
#   AWS::ApiGateway::DomainName
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any API Gateway domain name resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an API Gateway domain name resource
#     And: 'SecurityPolicy' has been provided and set to a security policy that
#          allows
#             a minimum TLS protocol version earlier than TLSv1.2
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an API Gateway domain name resource
#     And: 'SecurityPolicy' has not been provided
#     Then: PASS
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an API Gateway domain name resource
#     And: 'SecurityPolicy' has been provided and set to a security policy that
#          requires
#             a minimum TLS protocol version of TLSv1.2
#      Then: PASS
#
# # Constants
# #
let API_GW_DOMAIN_NAME_TYPE = "AWS::ApiGateway::DomainName"
let ALLOWED_SECURITY_POLICIES = ["TLS_1_2"]
let INPUTDocumento = this
#
# # Assignments
# #
let api_gateway_domain_names = Resources.*[ Type == %API_GW_DOMAIN_NAME_TYPE ]
#
# # Primary Rules
# #
rule api_gw_domain_tls_check when is_cfn_template(%INPUT_DOCUMENT)
    %api_gateway_domain_names not empty {
        check(%api_gateway_domain_names.Properties)
        <<
        [CT.APIGATEWAY.PR.6]: Require an Amazon API Gateway REST domain to use a
        security policy that specifies a minimum TLS protocol version of TLSv1.2
        [FIX]: Set the value of SecurityPolicy to TLS_1_2, or to adopt the default
        value, do not provide a value for SecurityPolicy.
        >>
    }
rule api_gw_domain_tls_check when is_cfn_hook(%INPUT_DOCUMENT, %API_GW_DOMAIN_NAME_TYPE) {
    check(%INPUT_DOCUMENT.%API_GW_DOMAIN_NAME_TYPE.resourceProperties)
    <<
    [CT.APIGATEWAY.PR.6]: Require an Amazon API Gateway REST domain to use a
    security policy that specifies a minimum TLS protocol version of TLSv1.2
    [FIX]: Set the value of SecurityPolicy to TLS_1_2, or to adopt the default
    value, do not provide a value for SecurityPolicy.
    >>
}
#
# # Parameterized Rules
# #
rule check(api_gateway_stage) {
    %api_gateway_stage {

# Scenario 2, 3, 4
SecurityPolicy not exists or
SecurityPolicy in %ALLOWED_SECURITY_POLICIES

Utility Rules

```plaintext
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

CT.APIGATEWAY.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
  DomainName:
    Type: AWS::ApiGateway::DomainName
    Properties:
      DomainName: example.com
      EndpointConfiguration:
        Types:
        - REGIONAL
      SecurityPolicy: TLS_1_2
```
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DomainName:
  Type: AWS::ApiGateway::DomainName
Properties:
  DomainName: example.com
  EndpointConfiguration:
    Types:
      - REGIONAL
    SecurityPolicy: TLS_1_0

AWS Certificate Manager controls

Topics
• [CT.ACM.PR.1] Require an AWS Private CA certificate to have a single domain name

[CT.ACM.PR.1] Require an AWS Private CA certificate to have a single domain name

This control checks whether any AWS Certificate Manager (ACM) Private CA certificates have wildcard domain names instead of single domain names.

• Control objective: Protect configurations
• Implementation: AWS CloudFormation Guard Rule
• Control behavior: Proactive
• Resource types: AWS::CertificateManager::Certificate
• AWS CloudFormation guard rule: CT.ACM.PR.1 rule specification

Details and examples
• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.ACM.PR.1 rule specification
For examples of PASS and FAIL CloudFormation Templates related to this control, see:  
[CT.ACM.PR.1 example templates](#)

**Explanation**

AWS Private CA allows you to use wildcards (*) in the domain name, so you can protect several sites in the same domain. This type of certificate presents some risk, because if the private key of a certificate is compromised, all domain and subdomains with the compromised certificate are compromised. We recommend that you use single domain name certificates instead of wildcard certificates to reduce these associated risks.

**Remediation for rule failure**

Set `DomainName` and each entry within `SubjectAlternativeNames` to a fully qualified domain name (FQDN) that does not contain a wildcard (*).

The examples that follow show how to implement this remediation.

**AWS Certificate Manager Private CA Certificate - Example One**

AWS Certificate Manager Private CA certificate configured with a single domain and no subject alternative names. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "Resources": {
        "ACMCertificate": {
            "Type": "AWS::CertificateManager::Certificate",
            "Properties": {
                "DomainName": "example.com"
            }
        }
    }
}
```

**YAML example**

```yaml
Proactive controls
```
The examples that follow show how to implement this remediation.

**AWS Certificate Manager Private CA Certificate - Example Two**

AWS Certificate Manager private CA certificate configured with a single domain and one subject alternative name. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "Resources": {
        "ACMCertificate": {
            "Type": "AWS::CertificateManager::Certificate",
            "Properties": {
                "DomainName": "example.com",
                "SubjectAlternativeNames": ["www.example.com"]
            }
        }
    }
}
```

**YAML example**

```yaml
Resources:
  ACMCertificate:
    Type: AWS::CertificateManager::Certificate
    Properties:
      DomainName: example.com
      SubjectAlternativeNames: [www.example.com]
```
ACMCertificate:
    Type: AWS::CertificateManager::Certificate
    Properties:
        DomainName: example.com
        SubjectAlternativeNames:
            - www.example.com

CT.ACM.PR.1 rule specification

# ####################################################################################################
##       Rule Specification        ##
####################################################################################################
#
# Rule Identifier:
#    acm_certificate_domain_name_check
#
# Description:
#    This control checks whether any AWS Certificate Manager (ACM) Private CA certificates have wildcard domain names instead of single domain names.
#
# Reports on:
#    AWS::CertificateManager::Certificate
#
# Evaluates:
#    AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#    None
#
# Scenarios:
#    Scenario: 1
#        Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document does not contain any ACM certificate resources
#        Then: SKIP
#    Scenario: 2
#        Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

Proactive controls
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ACM certificate resource
And: 'CertificateAuthorityArn' has not been provided
And: 'DomainName' has not been provided
Then: SKIP

Scenario: 3

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ACM certificate resource
And: 'CertificateAuthorityArn' has been provided
And: 'DomainName' has not been provided
Then: FAIL

Scenario: 4

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ACM certificate resource
And: 'CertificateAuthorityArn' has been provided
And: 'SubjectAlternativeNames' has not been provided or provided as an empty list
And: 'DomainName' has been provided with a string that begins with a wildcard character ('*').
Then: FAIL

Scenario: 5

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ACM certificate resource
And: 'CertificateAuthorityArn' has been provided
And: 'DomainName' has been provided with a string that does not begin with a wildcard character ('*').
And: 'SubjectAlternativeNames' has been provided as a non-empty list containing a string that begins with a wildcard character ('*').
Then: FAIL

Scenario: 6

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ACM certificate resource
And: 'CertificateAuthorityArn' has been provided
And: 'DomainName' has been provided with a string that does not begin with a wildcard character ('*').
And: 'SubjectAlternativeNames' has not been provided or provided as an empty list
Then: PASS

Scenario: 7

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ACM certificate resource
And: 'CertificateAuthorityArn' has been provided
And: 'DomainName' has been provided with a string that does not begin with a wildcard character ("*").
And: 'SubjectAlternativeNames' has been provided as a non-empty list where no entries are strings that
  begin with a wildcard character ("*").
Then: PASS

# Constants

let ACM_CERTIFICATE_TYPE = "AWS::CertificateManager::Certificate"
let WILDCARD_DOMAIN_NAME_REGEX_PATTERN = /(^\*\.).*$/
let INPUT_DOCUMENT = this

# Assignments

let acm_certificates = Resources.*[ Type == %ACM_CERTIFICATE_TYPE ]

# Primary Rules

rule acm_certificate_domain_name_check when is_cfn_template(%INPUT_DOCUMENT) %acm_certificates not empty {
  check(%acm_certificates.Properties)
  <<
  [CT.ACM.PR.1]: Require an AWS Private CA certificate to have a single domain name
  [FIX]: Set 'DomainName' and each entry within 'SubjectAlternativeNames' to a fully qualified domain name (FQDN) that does not contain a wildcard (*).
  >>
}

rule acm_certificate_domain_name_check when is_cfn_hook(%INPUT_DOCUMENT, %ACM_CERTIFICATE_TYPE) {
  check(%INPUT_DOCUMENT.%ACM_CERTIFICATE_TYPE.resourceProperties)
  <<
  [CT.ACM.PR.1]: Require an AWS Private CA certificate to have a single domain name
  [FIX]: Set 'DomainName' and each entry within 'SubjectAlternativeNames' to a fully qualified domain name (FQDN) that does not contain a wildcard (*).
  >>
}
# Parameterized Rules

## rule check(acm_certificate) {

%acm_certificate[
  CertificateAuthorityArn exists
]{
  # Scenario 2
  DomainName exists
  # Scenario 3 and 4
  check_wildcarded_domain(DomainName)
  check_subject_alternative_names(this)
}
}

## rule check_subject_alternative_names(acm_certificate) {

%acm_certificate[
  SubjectAlternativeNames exists
  SubjectAlternativeNames is_list
  SubjectAlternativeNames not empty
]{
  SubjectAlternativeNames[*] {
    check_wildcarded_domain(this)
  }
}
}

## rule check_wildcarded_domain(domain) {

%domain {
  this is_string
  this != %WILDCARD_DOMAIN_NAME_REGEX_PATTERN
}
}

## Utility Rules

## rule is_cfn_template(doc) {

%doc {
  AWSTemplateFormatVersion exists or
  Resources exists
}
}
CT.ACM.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
ACMCertificate:
  Type: AWS::CertificateManager::Certificate
  Properties:
    DomainName: example.com

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ACMCertificate:
  Type: AWS::CertificateManager::Certificate
  Properties:
    DomainName: '*.example.com'
AWS AppSync controls

Topics

- [CT.APPSYNC.PR.1] Require an AWS AppSync GraphQL API to have logging enabled
- [CT.APPSYNC.PR.2] Require an AWS AppSync GraphQL API to be configured with private visibility
- [CT.APPSYNC.PR.3] Require that an AWS AppSync GraphQL API is not authenticated with API keys
- [CT.APPSYNC.PR.4] Require an AWS AppSync GraphQL API cache to have encryption in transit enabled.
- [CT.APPSYNC.PR.5] Require an AWS AppSync GraphQL API cache to have encryption at rest enabled.

[CT.APPSYNC.PR.1] Require an AWS AppSync GraphQL API to have logging enabled

This control checks whether an AWS AppSync GraphQL API has been configured to send request-level and field-level logs to Amazon CloudWatch Logs.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AppSync::GraphQLApi
- **AWS CloudFormation guard rule:** [CT.APPSYNC.PR.1 rule specification]

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.APPSYNC.PR.1 rule specification]
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.APPSYNC.PR.1 example templates]

Explanation

AppSync logs are useful for debugging issues related to requests.
Remediation for rule failure

Within LogConfig, set FieldLogLevel to ALL or ERROR and set CloudWatchLogsRoleArn to the ARN of an AWS IAM role configured to allow AWS AppSync to send logs to Amazon CloudWatch Logs.

The examples that follow show how to implement this remediation.

AWS AppSync GraphQL API - Example

An AWS AppSync GraphQL API configured to send GraphQL operations and tracing to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

JSON example

```json
{
    "GraphQLApi": {
        "Type": "AWS::AppSync::GraphQLApi",
        "Properties": {
            "Name": "SampleApi",
            "AuthenticationType": "AWS_IAM",
            "LogConfig": {
                "FieldLogLevel": "ALL",
                "CloudWatchLogsRoleArn": {
                    "Fn::GetAtt": [
                        "AppSyncLoggingRole",
                        "Arn"
                    ]
                }
            }
        }
    }
}
```

YAML example

```yaml
GraphQLApi:
  Type: AWS::AppSync::GraphQLApi
  Properties:
    Name: SampleApi
```
AuthenticationType: AWS_IAM
LogConfig:
  FieldLogLevel: ALL
  CloudWatchLogsRoleArn: !GetAtt 'AppSyncLoggingRole.Arn'

CT.APPSYNC.PR.1 rule specification

# Representatives of the rule
## Rule Specification

# Rule Identifier:
#   appsync_logging_enabled_check
#
# Description:
#   This control checks whether an AWS AppSync GraphQL API has been configured to send
#   request-level and field-level logs to Amazon CloudWatch Logs.
#
# Reports on:
#   AWS::AppSync::GraphQLApi
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any AppSync GraphQL API resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an AppSync GraphQL API resource
#     And: 'LogConfig' has not been provided
#     Then: FAIL
#   Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an AppSync GraphQL API resource
And: 'LogConfig' has been provided
And: 'FieldLogLevel' in 'LogConfig' has not been provided or provided and set to a value other than 'ERROR' or 'ALL'
And: 'CloudWatchLogsRoleArn' in 'LogConfig' has not been provided or provided and set to an empty string or invalid local reference
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an AppSync GraphQL API resource
And: 'LogConfig' has been provided
And: 'FieldLogLevel' in 'LogConfig' has been provided and set to 'ERROR' or 'ALL'
And: 'CloudWatchLogsRoleArn' in 'LogConfig' has not been provided or provided and set to an empty string or invalid local reference
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an AppSync GraphQL API resource
And: 'LogConfig' has been provided
And: 'FieldLogLevel' in 'LogConfig' has not been provided or provided and set to a value other than 'ERROR' or 'ALL'
And: 'CloudWatchLogsRoleArn' in 'LogConfig' has been provided and set to a non-empty string or valid local reference
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an AppSync GraphQL API resource
And: 'LogConfig' has been provided
And: 'FieldLogLevel' in 'LogConfig' has been provided and set to 'ERROR' or 'ALL'
And: 'CloudWatchLogsRoleArn' in 'LogConfig' has been provided and set to a non-empty string or valid local reference
# Then: PASS

#  
# Constants
#  
let APPSYNC_GRAPHQL_API_TYPE = "AWS::AppSync::GraphQLApi"
let ALLOWED_APPSYNC_LOG_LEVELS = [ "ERROR", "ALL" ]
let INPUT_DOCUMENT = this

#  
# Assignments
#  
let appsync_graphql_apis = Resources.*[ Type == %APPSYNC_GRAPHQL_API_TYPE ]

#  
# Primary Rules
#  
rule appsync_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
  %appsync_graphql_apis not empty {
    check(%appsync_graphql_apis.Properties)
    <<
      [CT.APPSYNC.PR.1]: Require an AWS AppSync GraphQL API to have logging enabled
      [FIX]: Within 'LogConfig', set 'FieldLogLevel' to 'ALL' or 'ERROR' and set
      'CloudWatchLogsRoleArn' to the ARN of an AWS IAM role configured to allow AWS AppSync
      to send logs to Amazon CloudWatch Logs.
    >>
  }

rule appsync_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %APPSYNC_GRAPHQL_API_TYPE) {
    check(%INPUT_DOCUMENT.%APPSYNC_GRAPHQL_API_TYPE.resourceProperties)
    <<
      [CT.APPSYNC.PR.1]: Require an AWS AppSync GraphQL API to have logging enabled
      [FIX]: Within 'LogConfig', set 'FieldLogLevel' to 'ALL' or 'ERROR' and set
      'CloudWatchLogsRoleArn' to the ARN of an AWS IAM role configured to allow AWS AppSync
      to send logs to Amazon CloudWatch Logs.
    >>
}

#  
# Parameterized Rules
#  
rule check(appsync_graphql_api) {
  %appsync_graphql_api {

# Scenario 2
LogConfig exists
LogConfig is_struct

LogConfig {
    # Scenarios 3, 4, 5 and 6
    FieldLogLevel exists
    FieldLogLevel in %ALLOWED_APPSYNC_LOG_LEVELS

    CloudWatchLogsRoleArn exists
    check_is_string_and_not_empty(CloudWatchLogsRoleArn) or
    check_local_references(%INPUTocument, CloudWatchLogsRoleArn,
    "AWS::IAM::Role")
}
}
}

# Utility Rules

# rule is_cfn_template(doc) {
#    %doc {
#        AWSTemplateFormatVersion exists or
#        Resources exists
#    }
#}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            // Further rules
        }
    }
}

Proactive controls
You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
GraphQLApi:
  Type: AWS::AppSync::GraphQLApi
  Properties:
    Name:
      Fn::Sub: ${AWS::StackName}-example
    AuthenticationType: AWS_IAM
    LogConfig:
      FieldLogLevel: ALL
      CloudWatchLogsRoleArn:
        Fn::GetAtt:
        - AppSyncLoggingRole
        - Arn
    AppSyncLoggingRole:
      Type: AWS::IAM::Role
      Properties:
        AssumeRolePolicyDocument:
          Version: '2012-10-17'
          Statement:
- Effect: Allow
  Principal:
  Service:
    - appsync.amazonaws.com
  Action:
    - sts:AssumeRole
  Path: /
  Policies:
    - PolicyName: AppSyncLoggingPolicy
      PolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Action:
              - logs:CreateLogGroup
              - logs:CreateLogStream
              - logs:PutLogEvents
            Resource: '*'

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
GraphQLApi:
  Type: AWS::AppSync::GraphQLApi
  Properties:
    Name:
      Fn::Sub: ${AWS::StackName}-example
    AuthenticationType: AWS_IAM
  LogConfig:
    FieldLogLevel: NONE
    CloudWatchLogsRoleArn:
      Fn::GetAtt:
        - AppSyncLoggingRole
        - Arn
  AppSyncLoggingRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
[CT.APSYNS.0.2] Require an AWS AppSync GraphQL API to be configured with private visibility

This control checks whether an AWS AppSync GraphQL API has been configured with private visibility.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AppSync::GraphQLApi
- **AWS CloudFormation guard rule:** [CT.APSYNS.0.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.APSYNS.0.2 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.APSYNS.0.2 example templates](#)
Explanation

If you use Amazon Virtual Private Cloud (Amazon VPC), you can create AWS AppSync Private APIs, which are APIs that are accessible only from a Amazon VPC. With a Private API, you can restrict API access to your internal applications and connect to your GraphQL and Realtime endpoints without exposing data publicly.

**Usage considerations**

- This control requires AWS AppSync GraphQL APIs to be configured with private API features, so that they are accessible only from a Amazon VPC. If you require your AWS AppSync GraphQL APIs to be accessible from an AWS AppSync public endpoint, do not enable this control.

**Remediation for rule failure**

Set the Visibility property to PRIVATE.

The examples that follow show how to implement this remediation.

**AWS AppSync Private API - Example**

An AWS AppSync GraphQL API configured with private visibility. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "GraphQLApi": {
        "Type": "AWS::AppSync::GraphQLApi",
        "Properties": {
            "Name": "SampleApi",
            "AuthenticationType": "AWS_IAM",
            "Visibility": "PRIVATE"
        }
    }
}
```

**YAML example**

```yaml
Proactive controls
```
GraphQLApi:
  Type: AWS::AppSync::GraphQLApi
Properties:
  Name: SampleApi
  AuthenticationType: AWS_IAM
  Visibility: PRIVATE

CT.APPSYNC.PR.2 rule specification

# #################################################################
##       Rule Specification        ##
# #################################################################
#
# Rule Identifier:
#   appsync_api_private_visibility_check
#
# Description:
#   This control checks whether an AWS AppSync GraphQL API has been configured with
#   private visibility.
#
# Reports on:
#   AWS::AppSync::GraphQLApi
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any AWS AppSync GraphQL API resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an AWS AppSync GraphQL API resource
# And: 'Visibility' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an AWS AppSync GraphQL API resource
# And: 'Visibility' has been provided and set to a value other than 'PRIVATE'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an AWS AppSync GraphQL API resource
# And: 'Visibility' has been provided and set to 'PRIVATE'
# Then: PASS

# Constants
#
let APPSYNC_GRAPHQL_API_TYPE = "AWS::AppSync::GraphQLApi"
let ALLOWED_VISIBILITY_LEVELS = [ "PRIVATE" ]
let INPUT_DOCUMENT = this
#
# Assignments
#
let appsync_graphql_apis = Resources.*[ Type == %APPSYNC_GRAPHQL_API_TYPE ]
#
# Primary Rules
#
rule appsync_api_private_visibility_check when is_cfn_template(%INPUT_DOCUMENT)
%appsync_graphql_apis not empty {
    check(%appsync_graphql_apis.Properties)
    %appsync_graphql_apis not empty {
        <<
        [CT.APSSYNC.PR.2]: Require an AWS AppSync GraphQL API to be configured with
        private visibility
        [FIX]: Set the Visibility property to PRIVATE.
        >>
    }
}
rule appsync_api_private_visibility_check when is_cfn_hook(%INPUT_DOCUMENT,
%APPSYNC_GRAPHQL_API_TYPE) {
    check(%INPUT_DOCUMENT.%APPSYNC_GRAPHQL_API_TYPE.resourceProperties)
    <<
[CT.APPSYNC.PR.2]: Require an AWS AppSync GraphQL API to be configured with private visibility

[FIX]: Set the Visibility property to PRIVATE.

```java
rule check(appsync_graphql_api) {
  %appsync_graphql_api {
    # Scenario 2
    Visibility exists
    # Scenarios 3 and 4
    Visibility in %ALLOWED_VISIBILITY_LEVELS
  }
}
```

## Parameterized Rules

### Utility Rules

```java
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```java
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

### Example Templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:**

GraphQLOApi:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
GraphQLApi:
  Type: AWS::AppSync::GraphQLApi
  Properties:
    Name:
      Fn::Sub: ${AWS::StackName}-example
    AuthenticationType: AWS_IAM
    Visibility: GLOBAL

[CT.APPSYNC.PR.3] Require that an AWS AppSync GraphQL API is not authenticated with API keys

This control checks that an AWS AppSync GraphQL API has been configured with an authentication type other than API_KEY authentication.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AppSync::GraphQLApi
- **AWS CloudFormation guard rule:** [CT.APPSYNC.PR.3 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.APPSYNC.PR.3 rule specification](#)
For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: CT.APPSYNC.PR.3 example templates

Explanation

One way to control throttling for unauthenticated GraphQL endpoints is through the use of API keys. API keys are recommended only for development purposes, or in scenarios where it is safe to expose a public API. If static API keys are stolen, an API can become vulnerable to replay attacks.

Remediation for rule failure

Set the AuthenticationType property to a value other than API_KEY, and ensure no entry in the AdditionalAuthenticationProviders property has an AuthenticationType value of API_KEY.

The examples that follow show how to implement this remediation.

AWS AppSync GraphQL API - Example

An AWS AppSync GraphQL API configured with IAM authorization. The example is shown in JSON and in YAML.

JSON example

```json
{
  "GraphQLApi": {
    "Type": "AWS::AppSync::GraphQLApi",
    "Properties": {
      "Name": "SampleApi",
      "AuthenticationType": "AWS_IAM"
    }
  }
}
```

YAML example

```yaml
GraphQLApi:
  Type: AWS::AppSync::GraphQLApi
  Properties:
```
Name: SampleApi
AuthenticationType: AWS_IAM

CT.APPSYNC.PR.3 rule specification

```
# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
# Rule Specification
# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
# # Rule Identifier:
#   appsync_authorization_check
#
# Description:
#   This control checks that an AWS AppSync GraphQL API has been configured with an authentication type other than API_KEY authentication.
#
# Reports on:
#   AWS::AppSync::GraphQLApi
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any AWS AppSync GraphQL API resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an AWS AppSync GraphQL API resource
#     And: 'AuthenticationType' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
```
# And: The input document contains an AWS AppSync GraphQL API resource
#   And: 'AuthenticationType' has been provided and is equal to 'API_KEY'
#   And: 'AdditionalAuthenticationProviders' has not been provided or provided as
#       an empty list
#   Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an AWS AppSync GraphQL API resource
#   And: 'AuthenticationType' has been provided and is equal to a value other than
#       'API_KEY'
#   And: 'AdditionalAuthenticationProviders' has been provided as a non-empty list
#       And: An entry in 'AdditionalAuthenticationProviders' has 'AuthenticationType'
#       equal to 'API_KEY'
#   Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an AWS AppSync GraphQL API resource
#   And: 'AuthenticationType' has been provided and is equal to a value other than
#       'API_KEY'
#   And: 'AdditionalAuthenticationProviders' has not been provided or provided as
#       an empty list
#   Then: PASS
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an AWS AppSync GraphQL API resource
#   And: 'AuthenticationType' has been provided and is equal to a value other than
#       'API_KEY'
#   And: 'AdditionalAuthenticationProviders' has been provided as a non-empty list
#       And: No entries in 'AdditionalAuthenticationProviders' have
#       'AuthenticationType' equal to 'API_KEY'
#   Then: PASS

# Constants
#
let APPSYNC_GRAPHQL_API_TYPE = "AWS::AppSync::GraphQLApi"
let DISALLOWED_AUTHORIZATION_TYPES = [ "API_KEY" ]
let INPUT_DOCUMENT = this

# Assignments
let appsync_graphql_apis = Resources.*[ Type == %APPSYNC_GRAPHQL_API_TYPE ]

# Primary Rules

rule appsync_authorization_check when is_cfn_template(%INPUT_DOCUMENT)
    %appsync_graphql_apis not empty {
        check(%appsync_graphql_apis.Properties)
        <<
        [CT.APPSYNC.PR.3]: Require that an AWS AppSync GraphQL API is not authenticated with API keys
        [FIX]: Set the AuthenticationType property to a value other than API_KEY, and ensure no entry in the AdditionalAuthenticationProviders property has an AuthenticationType value of API_KEY.
        >>
    }

rule appsync_authorization_check when is_cfn_hook(%INPUT_DOCUMENT,
    %APPSYNC_GRAPHQL_API_TYPE) {
    check(%INPUT_DOCUMENT.%APPSYNC_GRAPHQL_API_TYPE.resourceProperties)
    <<
    [CT.APPSYNC.PR.3]: Require that an AWS AppSync GraphQL API is not authenticated with API keys
    [FIX]: Set the AuthenticationType property to a value other than API_KEY, and ensure no entry in the AdditionalAuthenticationProviders property has an AuthenticationType value of API_KEY.
    >>
}

# Parameterized Rules

rule check(appsync_graphql_api) {
    %appsync_graphql_api {
        # Scenarios 2, 3 and 5
        check_authentication_type(this)
    }

    %appsync_graphql_api [
        AdditionalAuthenticationProviders exists
        AdditionalAuthenticationProviders is_list
        AdditionalAuthenticationProviders not empty
    ] {
AdditionalAuthenticationProviders[*] {
    # Scenarios 4 and 6
    check_authentication_type(this)
}

rule check_authentication_type(appsync_configuration) {
    %appsync_configuration {
        AuthenticationType exists
        AuthenticationType not in %DISALLOWED_AUTHORIZATION_TYPES
    }
}

# Utility Rules
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.APPSYNC.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
GraphQLApi:
    Type: AWS::AppSync::GraphQLApi
Properties:
    Name:
        Fn::Sub: ${AWS::StackName}-example
PASS Example - Use this template to verify a compliant resource creation.

Resources:
GraphQLApi:
  Type: AWS::AppSync::GraphQLApi
  Properties:
    Name: Fn::Sub: ${AWS::StackName}-example
    AuthenticationType: AWS_IAM
    AdditionalAuthenticationProviders:
      - AuthenticationType: OPENID_CONNECT
        OpenIDConnectConfig:
          Issuer: https://example.com/

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
GraphQLApi:
  Type: AWS::AppSync::GraphQLApi
  Properties:
    Name: Fn::Sub: ${AWS::StackName}-example
    AuthenticationType: API_KEY

[CT.APPSYNC.PR.4] Require an AWS AppSync GraphQL API cache to have encryption in transit enabled.

This control checks whether an AWS AppSync API cache has encryption in transit enabled.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
• **Control behavior:** Proactive
• **Resource types:** AWS::AppSync::ApiCache
• **AWS CloudFormation guard rule:** [CT.APPSYNC.PR.4 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.APPSYNC.PR.4 rule specification](#)

• For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.APPSYNC.PR.4 example templates](#)

**Explanation**

Enabling this feature ensures that requests between AWS AppSync, the cache, and the data sources (except insecure HTTP data sources) are encrypted at the network level. Because some processing is needed to encrypt and decrypt the data at the endpoints, in-transit encryption can affect performance.

**Remediation for rule failure**

Set the value of the TransitEncryptionEnabled property to true.

The examples that follow show how to implement this remediation.

**AWS AppSync GraphQL API Cache - Example**

An AWS AppSync GraphQL API cache configured with encryption in transit enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "GraphQLApiCache": {
    "Type": "AWS::AppSync::ApiCache",
    "Properties": {
      "ApiId": {
        "Fn::GetAtt": "GraphQLApi.ApiId"
      },
      "Type": "SMALL",
      "ApiCachingBehavior": "FULL_REQUEST_CACHING",
```
YAML example

GraphQLApiCache:
    Type: AWS::AppSync::ApiCache
    Properties:
        ApiId: !GetAtt 'GraphQLApi.ApiId'
        Type: SMALL
        ApiCachingBehavior: FULL_REQUEST_CACHING
        Ttl: 1200
        TransitEncryptionEnabled: true

CT.APPSYNC.PR.4 rule specification

```
# ####################################################################
##       Rule Specification        
# ####################################################################
#
# Rule Identifier:
#   appsync_cache_encryption_in_transit_check
#
# Description:
#   This control checks whether an AWS AppSync API cache has encryption in transit enabled.
#
# Reports on:
#   AWS::AppSync::ApiCache
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
```
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any AWS AppSync GraphQL API cache resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an AWS AppSync GraphQL API cache resource
#     And: 'TransitEncryptionEnabled' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an AWS AppSync GraphQL API cache resource
#     And: 'TransitEncryptionEnabled' has been provided and is equal to a value other than bool(true)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an AWS AppSync GraphQL API cache resource
#     And: 'TransitEncryptionEnabled' has been provided and is equal to bool(true)
#     Then: PASS

# Constants
#
let APPSYNC_GRAPHQL_API_CACHE_TYPE = "AWS::AppSync::ApiCache"
let INPUT_DOCUMENT = this

# Assignments
#
let appsync_graphql_api_caches = Resources.*[ Type == %APPSYNC_GRAPHQL_API_CACHE_TYPE ]

# Primary Rules
#
rule appsync_cache_encryption_in_transit_check when is_cfn_template(%INPUT_DOCUMENT)
%appsync_graphql_api_caches not empty {
  check(%appsync_graphql_api_caches.Properties)
  <<
  [CT.APPSYNC.PR.4]: Require an AWS AppSync GraphQL API cache to have encryption in transit enabled.
  [FIX]: Set the value of the TransitEncryptionEnabled property to true.
  >>
}

rule appsync_cache_encryption_in_transit_check when is_cfn_hook(%INPUT_DOCUMENT, %APPSYNC_GRAPHQL_API_CACHE_TYPE) {
  check(%INPUT_DOCUMENT.%APPSYNC_GRAPHQL_API_CACHE_TYPE.resourceProperties)
  <<
  [CT.APPSYNC.PR.4]: Require an AWS AppSync GraphQL API cache to have encryption in transit enabled.
  [FIX]: Set the value of the TransitEncryptionEnabled property to true.
  >>
}

# # Parameterized Rules #
rule check(appsync_graphql_api_cache) {
  %appsync_graphql_api_cache {
    # Scenario 2
    TransitEncryptionEnabled exists
    # Scenarios 3 and 4
    TransitEncryptionEnabled == true
  }
}

# # Utility Rules #
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists

**CT.APPSYNC.PR.4 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  GraphQLApi:
    Type: AWS::AppSync::GraphQLApi
    Properties:
      Name:
        Fn::Sub: ${AWS::StackName}-example
      AuthenticationType: AWS_IAM
  GraphQLApiCache:
    Type: AWS::AppSync::ApiCache
    Properties:
      ApiId:
        Fn::GetAtt: GraphQLApi.ApiId
      Type: SMALL
      ApiCachingBehavior: FULL_REQUEST_CACHING
      Ttl: 1200
      TransitEncryptionEnabled: true
```

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

```yaml
Resources:
  GraphQLApi:
    Type: AWS::AppSync::GraphQLApi
    Properties:
      Name:
        Fn::Sub: ${AWS::StackName}-example
      AuthenticationType: AWS_IAM
```

Proactive controls
GraphQLApiCache:
  Type: AWS::AppSync::ApiCache
  Properties:
    ApiId:
      Fn::GetAtt: GraphQLApi.ApiId
    Type: SMALL
    ApiCachingBehavior: FULL_REQUEST_CACHING
    Ttl: 1200
    TransitEncryptionEnabled: false

[CT.APPSYNC.PR.5] Require an AWS AppSync GraphQL API cache to have encryption at rest enabled.

This control checks whether an AWS AppSync API cache has encryption at rest enabled.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AppSync::ApiCache
- **AWS CloudFormation guard rule:** [CT.APPSYNC.PR.5 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.APPSYNC.PR.5 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.APPSYNC.PR.5 example templates](#)

Explanation

Data saved to disk from memory during swap operations is encrypted at the cache instance. Protecting data at rest is an important security best practice. It can mitigate the risk associated with unintended data exposure.

Remediation for rule failure

Set the value of the AtRestEncryptionEnabled property to true.
The examples that follow show how to implement this remediation.

**AWS AppSync GraphQL API Cache - Example**

An AWS AppSync GraphQL API cache configured with encryption at rest enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "GraphQLApiCache": {
        "Type": "AWS::AppSync::ApiCache",
        "Properties": {
            "ApiId": {
                "Fn::GetAtt": "GraphQLApi.ApiId"
            },
            "Type": "SMALL",
            "ApiCachingBehavior": "FULL_REQUEST_CACHING",
            "Ttl": 1200,
            "AtRestEncryptionEnabled": true
        }
    }
}
```

**YAML example**

```yaml
GraphQLApiCache:
  Type: AWS::AppSync::ApiCache
  Properties:
    ApiId: !GetAtt 'GraphQLApi.ApiId'
    Type: SMALL
    ApiCachingBehavior: FULL_REQUEST_CACHING
    Ttl: 1200
    AtRestEncryptionEnabled: true
```

**CT.APPSYNC.PR.5 rule specification**

Proactive controls
Rule Identifier:
appsync_cache_encryption_at_rest_check

Description:
This control checks whether an AWS AppSync API cache has encryption at rest enabled.

Reports on:
AWS::AppSync::ApiCache

Evaluates:
AWS CloudFormation, AWS CloudFormation hook

Rule Parameters:
None

Scenarios:
Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any AWS AppSync GraphQL API cache resources
Then: SKIP
Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an AWS AppSync GraphQL API cache resource
And: 'AtRestEncryptionEnabled' has not been provided
Then: FAIL
Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an AWS AppSync GraphQL API cache resource
And: 'AtRestEncryptionEnabled' been provided and is equal to a value other than bool(true)
Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an AWS AppSync GraphQL API cache resource
And: 'AtRestEncryptionEnabled' been provided and is equal to bool(true)
Then: PASS

# Constants

let APPSYNC_GRAPHQL_API_CACHE_TYPE = "AWS::AppSync::ApiCache"
let INPUT_DOCUMENT = this

# Assignments

let appsync_graphql_api_caches = Resources.*[ Type == %APPSYNC_GRAPHQL_API_CACHE_TYPE ]

# Primary Rules

rule appsync_cache_encryption_at_rest_check when is_cfn_template(%INPUT_DOCUMENT)
%appsync_graphql_api_caches not empty
{
  check(%appsync_graphql_api_caches.Properties)
  <=
  [CT.APPSYNC.PR.5]: Require an AWS AppSync GraphQL API cache to have encryption at rest enabled.
  [FIX]: Set the value of the AtRestEncryptionEnabled property to true.
  >>
}

rule appsync_cache_encryption_at_rest_check when is_cfn_hook(%INPUT_DOCUMENT,
%APPSYNC_GRAPHQL_API_CACHE_TYPE) {
  check(%INPUT_DOCUMENT.%APPSYNC_GRAPHQL_API_CACHE_TYPE.resourceProperties)
  <=
  [CT.APPSYNC.PR.5]: Require an AWS AppSync GraphQL API cache to have encryption at rest enabled.
  [FIX]: Set the value of the AtRestEncryptionEnabled property to true.
  >>
}

# Parameterized Rules

rule check(appsync_graphql_api_cache) {
  %appsync_graphql_api_cache {
    # Scenario 2
AtRestEncryptionEnabled exists
# Scenarios 3 and 4
AtRestEncryptionEnabled == true
}
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.APPSYNC.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
GraphQLApi:
  Type: AWS::AppSync::GraphQLApi
  Properties:
    Name:
      Fn::Sub: ${AWS::StackName}-example
    AuthenticationType: AWS_IAM
GraphQLApiCache:
  Type: AWS::AppSync::ApiCache
  Properties:
    ApiId:
      Fn::GetAtt: GraphQLApi.ApiId
    Type: SMALL
    ApiCachingBehavior: FULL_REQUEST_CACHING
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
GraphQLApi:
  Type: AWS::AppSync::GraphQLApi
  Properties:
  Name:
    Fn::Sub: ${AWS::StackName}-example
  AuthenticationType: AWS_IAM
GraphQLApiCache:
  Type: AWS::AppSync::ApiCache
  Properties:
  ApiId:
    Fn::GetAtt: GraphQLApi.ApiId
  Type: SMALL
  ApiCachingBehavior: FULL_REQUEST_CACHING
  Ttl: 1200
  AtRestEncryptionEnabled: false

Amazon Athena controls

Topics
- [CT.ATHENA.PR.1] Require an Amazon Athena workgroup to encrypt Athena query results at rest
- [CT.ATHENA.PR.2] Require an Amazon Athena workgroup to encrypt Athena query results at rest with an AWS Key Management Service (KMS) key

[CT.ATHENA.PR.1] Require an Amazon Athena workgroup to encrypt Athena query results at rest

This control checks whether an Amazon Athena workgroup requires query results to be encrypted at rest.
• **Control objective:** Encrypt data at rest
• **Implementation:** AWS CloudFormation guard rule
• **Control behavior:** Proactive
• **Resource types:** `AWS::Athena::WorkGroup`
• **AWS CloudFormation guard rule:** [CT.ATHENA.PR.1 rule specification](#)

Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ATHENA.PR.1 rule specification](#)
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ATHENA.PR.1 example templates](#)

Explanation

For an added layer of security, you can encrypt the results of all Athena queries in Amazon S3. The location where Athena stores these query results is known as the Amazon S3 results location.

⚠️ Usage considerations

• This control requires Athena workgroups to override client settings by requiring the `EnforceWorkGroupConfiguration` property to be provided and set to true, or omitted to adopt the default value of true.

Remediation for rule failure

In the `WorkGroupConfiguration.ResultConfiguration` parameter, provide an `EncryptionConfiguration` configuration with an `EncryptionOption` value set to one of `CSE_KMS`, `SSE_KMS` or `SSE_S3`.

The examples that follow show how to implement this remediation.

**Amazon Athena workgroup - Example**

Amazon Athena workgroup configured to encrypt Athena query results with Amazon S3-managed keys (SSE_S3). The example is shown in JSON and in YAML.
JSON example

```
{
   "AthenaWorkGroup": {
      "Type": "AWS::Athena::WorkGroup",
      "Properties": {
         "Name": {
            "Fn::Sub": "${AWS::StackName}-example"
         },
         "Description": "Example workgroup",
         "State": "ENABLED",
         "WorkGroupConfiguration": {
            "ResultConfiguration": {
               "EncryptionConfiguration": {
                  "EncryptionOption": "SSE_S3"
               }
            }
         }
      }
   }
}
```

YAML example

```
AthenaWorkGroup:
   Type: AWS::Athena::WorkGroup
   Properties:
      Name: !Sub '${AWS::StackName}-example'
      Description: Example workgroup
      State: ENABLED
      WorkGroupConfiguration:
         ResultConfiguration:
            EncryptionConfiguration:
               EncryptionOption: SSE_S3
```

CT.ATHENA.PR.1 rule specification
# Rule Specification

## Rule Identifier:

`athena_workgroup_results_encrypted_at_rest_check`

## Description:

This control checks whether an Amazon Athena workgroup requires query results to be encrypted at rest.

## Reports on:

`AWS::Athena::WorkGroup`

## Evaluates:

AWS CloudFormation, AWS CloudFormation hook

## Rule Parameters:

None

## Scenarios:

### Scenario: 1

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any Athena workgroup resources
Then: SKIP

### Scenario: 2

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Athena workgroup resource
And: 'EnforceWorkGroupConfiguration' in 'WorkGroupConfiguration' has been provided and
    set to a value other than bool(true)
Then: FAIL

### Scenario: 3

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Athena workgroup resource
And: 'EnforceWorkGroupConfiguration' in 'WorkGroupConfiguration' has not been provided or provided
    and set to bool(true)
And: 'EncryptionConfiguration' in 'WorkGroupConfiguration.ResultConfiguration' has not been provided
Then: FAIL
# Scenario: 4
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an Athena workgroup resource
#   And: 'EnforceWorkGroupConfiguration' in 'WorkGroupConfiguration' has not been provided or provided
#        and set to bool(true)
#   And: 'EncryptionConfiguration' in 'WorkGroupConfiguration.ResultConfiguration' has been provided
#        And: 'EncryptionOption' in 'EncryptionConfiguration' has not been provided or provided as an empty string
#   Then: FAIL
# Scenario: 5
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an Athena workgroup resource
#   And: 'EnforceWorkGroupConfiguration' in 'WorkGroupConfiguration' has not been provided or provided
#        and set to bool(true)
#   And: 'EncryptionConfiguration' in 'WorkGroupConfiguration.ResultConfiguration' has been provided
#        And: 'EncryptionOption' in 'EncryptionConfiguration' has been provided as a non-empty string
#   Then: PASS

# Constants
# let ATHENA_WORKGROUP_TYPE = "AWS::Athena::WorkGroup"
let INPUT_DOCUMENT = this

# Assignments
# let athena_workgroups = Resources.*[ Type == %ATHENA_WORKGROUP_TYPE ]

# Primary Rules
# rule athena_workgroup_results_encrypted_at_rest_check when
#   is_cfn_template(%INPUT_DOCUMENT)  
#        %athena_workgroups not empty
{
   check(%athena_workgroups.Properties)
require an Amazon Athena workgroup to encrypt Athena query results at rest. 

[FIX]: In the 'WorkGroupConfiguration.ResultConfiguration' parameter, provide an 'EncryptionConfiguration' configuration with an 'EncryptionOption' value set to one of 'CSE_KMS', 'SSE_KMS' or 'SSE_S3'.

```prose
rule athena_workgroup_results_encrypted_at_rest_check when is_cfn_hook(%INPUT_DOCUMENT, %ATHENA_WORKGROUP_TYPE) {
    check(%INPUT_DOCUMENT.%ATHENA_WORKGROUP_TYPE.resourceProperties)

    [CT.ATHENA.PR.1]: Require an Amazon Athena workgroup to encrypt Athena query results at rest
    [FIX]: In the 'WorkGroupConfiguration.ResultConfiguration' parameter, provide an 'EncryptionConfiguration' configuration with an 'EncryptionOption' value set to one of 'CSE_KMS', 'SSE_KMS' or 'SSE_S3'.
}
```

# Parameterized Rules

```
rule check(athena_workgroup) {
    %athena_workgroup {
        WorkGroupConfiguration exists
        WorkGroupConfiguration is_struct

        WorkGroupConfiguration {
            # Scenario 2
            EnforceWorkGroupConfiguration not exists or
            EnforceWorkGroupConfiguration == true

            ResultConfiguration exists
            ResultConfiguration is_struct
            ResultConfiguration {
                # Scenario 3
                EncryptionConfiguration exists
                EncryptionConfiguration is_struct

                EncryptionConfiguration {
                    # Scenarios 4 and 5
                    EncryptionOption exists
```
CT.ATHENA.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
AthenaWorkGroup:
  Type: AWS::Athena::WorkGroup
  Properties:
    Name:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
AthenaWorkGroup:
  Type: AWS::Athena::WorkGroup
  Properties:
    Name:
      Fn::Sub: ${AWS::StackName}-example
    Description: Example workgroup
    State: ENABLED
    WorkGroupConfiguration:
      EnforceWorkGroupConfiguration: false

[CT.ATHENA.PR.2] Require an Amazon Athena workgroup to encrypt Athena query results at rest with an AWS Key Management Service (KMS) key

This control checks whether an Amazon Athena workgroup is configured to encrypt query results at rest with an AWS KMS key.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Athena::WorkGroup
- **AWS CloudFormation guard rule:** [CT.ATHENA.PR.2 rule specification](#)

Details and examples
For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ATHENA.PR.2 rule specification](#)

For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ATHENA.PR.2 example templates](#)

### Explanation

For an added layer of security, you can encrypt the results of Athena queries in the workgroup with AWS Key Management Service (KMS).

#### Usage considerations

- This control requires an Athena workgroup to override client settings by requiring the `EnforceWorkGroupConfiguration` property to be provided and set to true, or omitted to adopt the default value of true.

#### Remediation for rule failure

In the `WorkGroupConfiguration.ResultConfiguration` parameter, provide an `EncryptionConfiguration` configuration with an `EncryptionOption` set to a KMS-based encryption option, and with `KmsKey` set to the identifier or ARN of an AWS KMS key, or the name of an AWS KMS key alias.

The examples that follow show how to implement this remediation.

**Amazon Athena workgroup - Example**

Amazon Athena workgroup configured to encrypt Athena query results with AWS KMS (SSE_KMS). The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "AthenaWorkGroup": {
      "Type": "AWS::Athena::WorkGroup",
      "Properties": {
         "Name": {
            "Fn::Sub": "${AWS::StackName}-example"
         }
      }
   }
}
```
YAML example

AthenaWorkGroup:
  Type: AWS::Athena::WorkGroup
  Properties:
    Name: !Sub '${AWS::StackName}-example'
    Description: Example workgroup
    State: ENABLED
    WorkGroupConfiguration:
      EnforceWorkGroupConfiguration: true
      ResultConfiguration:
        EncryptionConfiguration:
          KmsKey: !Ref 'Key'
          EncryptionOption: SSE_KMS

CT.ATHENA.PR.2 rule specification

# ##########################################################################
##       Rule Specification       ##
##########################################################################
# Rule Identifier:
#  athena_workgroup_results_encrypted_at_rest_kms_check
#
# Description:
#  This control checks whether an Amazon Athena workgroup is configured to encrypt
#  query results at rest with an AWS KMS key.
#
# Reports on:
#  AWS::Athena::WorkGroup
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#  None
#
# Scenarios:
#  Scenario: 1
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#    And: The input document does not contain any Athena workgroup resources
#    Then: SKIP
#  Scenario: 2
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#    And: The input document contains an Athena workgroup resource
#    And: 'EnforceWorkGroupConfiguration' in 'WorkGroupConfiguration' has been provided and
#         set to a value other than bool(true)
#    Then: FAIL
#  Scenario: 3
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#    And: The input document contains an Athena workgroup resource
#    And: 'EnforceWorkGroupConfiguration' in 'WorkGroupConfiguration' has not been provided or provided
#         and set to bool(true)
#    And: 'EncryptionConfiguration' in 'WorkGroupConfiguration.ResultConfiguration'
#         has not been provided
#    Then: FAIL
#  Scenario: 4
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an Athena workgroup resource
And: 'EnforceWorkGroupConfiguration' in 'WorkGroupConfiguration' has not been provided or provided
   and set to bool(true)
And: 'EncryptionConfiguration' in 'WorkGroupConfiguration.ResultConfiguration' has been provided
   And: 'EncryptionOption' in 'EncryptionConfiguration' has not been provided or provided as an empty string
   And: 'KmsKey' in 'EncryptionConfiguration' has not been provided or provided as an empty string or
      invalid local reference
   Then: FAIL
Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   And: The input document contains an Athena workgroup resource
   And: 'EnforceWorkGroupConfiguration' in 'WorkGroupConfiguration' has not been provided or provided
      and set to bool(true)
   And: 'EncryptionConfiguration' in 'WorkGroupConfiguration.ResultConfiguration' has been provided
      And: 'EncryptionOption' in 'EncryptionConfiguration' has been provided as a non-empty string
      And: 'KmsKey' in 'EncryptionConfiguration' has not been provided or provided as an empty string or
      invalid local reference
   Then: FAIL
Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   And: The input document contains an Athena workgroup resource
   And: 'EnforceWorkGroupConfiguration' in 'WorkGroupConfiguration' has not been provided or provided
      and set to bool(true)
   And: 'EncryptionConfiguration' in 'WorkGroupConfiguration.ResultConfiguration' has been provided
      And: 'EncryptionOption' in 'EncryptionConfiguration' has not been provided or provided as an empty string
      And: 'KmsKey' in 'EncryptionConfiguration' has been provided as a non-empty string or valid local reference to
      a KMS key or key alias
   Then: FAIL
Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Athena workgroup resource
# And: 'EnforceWorkGroupConfiguration' in 'WorkGroupConfiguration' has not been provided or provided
#      and set to bool(true)
# And: 'EncryptionConfiguration' in 'WorkGroupConfiguration.ResultConfiguration' has been provided
#      And: 'EncryptionOption' in 'EncryptionConfiguration' has been provided as a non-empty string
#      And: 'KmsKey' in 'EncryptionConfiguration' has been provided as a non-empty string or valid local reference to
#      a KMS key or key alias
# Then: PASS

# Constants
#
let ATHENA_WORKGROUP_TYPE = "AWS::Athena::WorkGroup"
let INPUT_DOCUMENT = this
#
# Assignments
#
let athena_workgroups = Resources.*[ Type == %ATHENA_WORKGROUP_TYPE ]
#
# Primary Rules
#
rule athena_workgroup_results_encrypted_at_rest_kms_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %athena_workgroups not empty {
    check(%athena_workgroups.Properties) <<
      [CT.ATHENA.PR.2]: Require an Amazon Athena workgroup to encrypt Athena query results at rest with an AWS Key Management Service (KMS) key
      [FIX]: In the 'WorkGroupConfiguration.ResultConfiguration' parameter, provide an 'EncryptionConfiguration' configuration with an 'EncryptionOption' set to a KMS-based encryption option, and with 'KmsKey' set to the identifier or ARN of an AWS KMS key, or the name of an AWS KMS key alias.
    >>
  }

rule athena_workgroup_results_encrypted_at_rest_kms_check when
  is_cfn_hook(%INPUT_DOCUMENT, %ATHENA_WORKGROUP_TYPE) {
    check(%INPUT_DOCUMENT.%ATHENA_WORKGROUP_TYPE.resourceProperties)
      <<
      [CT.ATHENA.PR.2]: Require an Amazon Athena workgroup to encrypt Athena query
results at rest with an AWS Key Management Service (KMS) key
      [FIX]: In the 'WorkGroupConfiguration.ResultConfiguration' parameter, provide
an 'EncryptionConfiguration' configuration with an 'EncryptionOption' set to a KMS-
based encryption option, and with 'KmsKey' set to the identifier or ARN of an AWS KMS
key, or the name of an AWS KMS key alias.
    >>
}

# Parameterized Rules
#
rule check(athena_workgroup) {
  %athena_workgroup {
    WorkGroupConfiguration exists
    WorkGroupConfiguration is_struct
      
      WorkGroupConfiguration {
        # Scenario 2
        EnforceWorkGroupConfiguration not exists or
        EnforceWorkGroupConfiguration == true

        ResultConfiguration exists
        ResultConfiguration is_struct
        ResultConfiguration {
          # Scenario 3
          EncryptionConfiguration exists
          EncryptionConfiguration is_struct

          EncryptionConfiguration {
            # Scenarios 4, 5, 6 and 7
            EncryptionOption exists
            check_is_string_and_not_empty(EncryptionOption)

            KmsKey exists
            check_is_string_and_not_empty(KmsKey) or
            check_local_references(%INPUT_DOCUMENT, KmsKey, "AWS::KMS::Key") or
            check_local_references(%INPUT_DOCUMENT, KmsKey, "AWS::KMS::Alias")
          }
        }
      }
  }
}
# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_resource_type)
            <<Local Stack reference was invalid>>
        }
    }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    % referenced_resource not empty
    % referenced_resource {
        Type == %referenced_resource_type
    }
}
CT.ATHENA.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
Key:
  Type: AWS::KMS::Key
  Properties:
    KeyPolicy:
      Version: 2012-10-17
      Id: example-policy
      Statement:
        - Sid: Enable IAM user permissions
          Effect: Allow
          Principal:
            AWS:
              Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
          Action: kms:*
          Resource: '*'
        KeySpec: SYMMETRIC_DEFAULT

AthenaWorkGroup:
  Type: AWS::Athena::WorkGroup
  Properties:
    Name:
      Fn::Sub: ${AWS::StackName}-example
    Description: Example workgroup
    State: ENABLED
    WorkGroupConfiguration:
      EnforceWorkGroupConfiguration: true
      ResultConfiguration:
        EncryptionConfiguration:
          KmsKey:
            Ref: Key
          EncryptionOption: SSE_KMS
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
AthenaWorkGroup:
  Type: AWS::Athena::WorkGroup
Properties:
  Name:
    Fn::Sub: ${AWS::StackName}-example
  Description: Example workgroup
  State: ENABLED
  WorkGroupConfiguration:
    ResultConfiguration:
      EncryptionConfiguration:
        EncryptionOption: SSE_S3

Amazon CloudFront controls

Topics
- [CT.CLOUDFRONT.PR.1] Require an Amazon CloudFront distribution to have a default root object configured
- [CT.CLOUDFRONT.PR.2] Require any Amazon CloudFront distributions with Amazon S3 backed origins to have an origin access identity configured
- [CT.CLOUDFRONT.PR.3] Require an Amazon CloudFront distribution to have encryption in transit configured
- [CT.CLOUDFRONT.PR.4] Require an Amazon CloudFront distribution to have origin failover configured
- [CT.CLOUDFRONT.PR.5] Require any Amazon CloudFront distribution to have logging enabled
- [CT.CLOUDFRONT.PR.6] Require an Amazon CloudFront distribution to use custom SSL/TLS certificates
- [CT.CLOUDFRONT.PR.7] Require an Amazon CloudFront distribution to use SNI to serve HTTPS requests
- [CT.CLOUDFRONT.PR.8] Require an Amazon CloudFront distribution to encrypt traffic to custom origins
• **[CT.CLOUDFRONT.PR.9]** Require an Amazon CloudFront distribution to have a security policy of TLSv1.2 as a minimum

• **[CT.CLOUDFRONT.PR.10]** Require any Amazon CloudFront distributions with Amazon S3 backed origins to have origin access control configured

• **[CT.CLOUDFRONT.PR.11]** Require an Amazon CloudFront distribution to use updated SSL protocols between edge locations and custom origins

**[CT.CLOUDFRONT.PR.1]** Require an Amazon CloudFront distribution to have a default root object configured

This control checks whether an Amazon CloudFront distribution is configured to return a specific object that is the default root object.

• **Control objective:** Protect configurations

• **Implementation:** AWS CloudFormation Guard Rule

• **Control behavior:** Proactive

• **Resource types:** AWS::CloudFront::Distribution

• **AWS CloudFormation guard rule:** [CT.CLOUDFRONT.PR.1 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDFRONT.PR.1 rule specification](#)

• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDFRONT.PR.1 example templates](#)

**Explanation**

A user could possibly request a distribution's root URL instead of an object in the distribution. In this situation, specifying a default root object can help you to avoid exposing the contents of your web distribution.

**Remediation for rule failure**

Specify a default root object in the DefaultRootObject property.

The examples that follow show how to implement this remediation.
Amazon CloudFront Distribution - Example

Amazon CloudFront distribution configured with a default root object. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "CloudFrontDistribution": {
      "Type": "AWS::CloudFront::Distribution",
      "Properties": {
         "DistributionConfig": {
            "Enabled": false,
            "Origins": [
               {
                  "Id": "sampleOrigin",
                  "DomainName": "example.com",
                  "CustomOriginConfig": {
                     "OriginProtocolPolicy": "https-only"
                  }
               }
            ],
            "DefaultCacheBehavior": {
               "ViewerProtocolPolicy": "https-only",
               "TargetOriginId": "sampleOrigin",
               "CachePolicyId": {
                  "Ref": "CachePolicy"
               }
            },
            "DefaultRootObject": "index.html"
         }
      }
   }
}
```

**YAML example**

```yaml
CloudFrontDistribution:
   Type: AWS::CloudFront::Distribution
   Properties:
```

Proactive controls
CT.CLOUDFRONT.PR.1 rule specification

# ###################################################################
## Rule Specification ##
###################################################################
#
# Rule Identifier:
# cloudfront_default_root_object_configured_check
#
# Description:
# This control checks whether an Amazon CloudFront distribution is configured to return a specific object that is the default root object.
#
# Reports on:
# AWS::CloudFront::Distribution
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any CloudFront distribution resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'DefaultRootObject' is not present on the CloudFront distribution resource or is present and
# is an empty string
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'DefaultRootObject' is present on the CloudFront distribution resource and is a non-empty string
# Then: PASS

# Constants
#
let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
let INPUT_DOCUMENT = this

# Assignments
#
let cloudfront_distributions = Resources.*[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]

# Primary Rules
#
rule cloudfront_default_root_object_configured_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %cloudfront_distributions not empty {
    check(%cloudfront_distributions.Properties)
    <<
      [CT.CLOUDFRONT.PR.1]: Require an Amazon CloudFront distribution to have a default root object configured
      [FIX]: Specify a default root object in the 'DefaultRootObject' property.
    >>
  }
rule cloudfront_default_root_object_configured_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDFRONT_DISTRIBUTION_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDFRONT_DISTRIBUTION_TYPE.resourceProperties)
    <<
    [CT.CLOUDFRONT.PR.1]: Require an Amazon CloudFront distribution to have a
default root object configured
    [FIX]: Specify a default root object in the 'DefaultRootObject' property.
    >>
}

# Parameterized Rules
#
rule check(cloudfront_distribution) {
    %cloudfront_distribution {
        DistributionConfig exists
        DistributionConfig is_struct

        DistributionConfig {
            # Scenario 2
            DefaultRootObject exists
            # Scenario 3
            check_is_string_and_not_empty(DefaultRootObject)
        }
    }
}

# Utility Rules
#
rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
```python
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

**CT.CLOUDFRONT.PR.1 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example - Use this template to verify a compliant resource creation.**

```json
Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:
          Fn::Sub: ${AWS::StackName}-example-cache-policy
        ParametersInCacheKeyAndForwardedToOrigin:
          CookiesConfig:
            CookieBehavior: none
            EnableAcceptEncodingGzip: false
          HeadersConfig:
            HeaderBehavior: none
          QueryStringsConfig:
            QueryStringBehavior: none
  CloudFrontDistribution:
    Type: AWS::CloudFront::Distribution
    Properties:
      DistributionConfig:
        Enabled: false
        Origins:
          - Id: exampleOrigin
            DomainName: example.com
            CustomOriginConfig:
              OriginProtocolPolicy: https-only
              DefaultCacheBehavior:
```

Proactive controls
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:Fn::Sub: ${AWS::StackName}-example-cache-policy
  ParametersInCacheKeyAndForwardedToOrigin:
    CookiesConfig:
      CookieBehavior: none
    EnableAcceptEncodingGzip: false
    HeadersConfig:
      HeaderBehavior: none
    QueryStringsConfig:
      QueryStringBehavior: none
  CloudFrontDistribution:
    Type: AWS::CloudFront::Distribution
    Properties:
      DistributionConfig:
        Enabled: false
        Origins:
          - Id: exampleOrigin
            DomainName: example.com
            CustomOriginConfig:
              OriginProtocolPolicy: https-only
        DefaultCacheBehavior:
          ViewerProtocolPolicy: https-only
          TargetOriginId: exampleOrigin
**[CT.CLOUDFRONT.PR.2] Require any Amazon CloudFront distributions with Amazon S3 backed origins to have an origin access identity configured**

This control checks whether Amazon CloudFront distributions backed by Amazon S3 are configured with an origin access identity.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CloudFront::Distribution
- **AWS CloudFormation guard rule:** [CT.CLOUDFRONT.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see: [CT.CLOUDFRONT.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDFRONT.PR.2 example templates](#)

**Explanation**

CloudFront OAI prevents users from gaining direct access to Amazon S3 bucket content. With direct access to an Amazon S3 bucket, a user bypasses the CloudFront distribution and any permissions that are applied to the underlying S3 bucket content.

**Usage considerations**

- This control applies only to Amazon CloudFront distributions that are configured with one or more origins that are backed by Amazon S3.
Remediation for rule failure

Configure Amazon S3 backed origins by means of the Origins property. For each origin backed by Amazon S3, configure an origin access identity by means of the OriginAccessIdentity property within an S3OriginConfig configuration.

The examples that follow show how to implement this remediation.

Amazon CloudFront Distribution - Example

Amazon CloudFront distribution with an Amazon S3 bucket origin and origin access identity. The example is shown in JSON and in YAML.

JSON example

```json
{
    "CloudFrontDistribution": {
        "Type": "AWS::CloudFront::Distribution",
        "Properties": {
            "DistributionConfig": {
                "Enabled": false,
                "Origins": [
                    {
                        "Id": "sampleS3Origin",
                        "DomainName": {
                            "Fn::GetAtt": [
                                "OriginBucket",
                                "RegionalDomainName"
                            ]
                        },
                        "S3OriginConfig": {
                            "OriginAccessIdentity": {
                                "Fn::Join": [
                                    ",",
                                    [ "origin-access-identity/cloudfront/",
                                    {
                                        "Ref": "OriginBucketOai"
                                    } ]
                                ]
                            }
                        }
                    }
                ]
            }
        }
    }
}
```
YAML example

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
    Origins:
      - Id: sampleS3Origin
        DomainName: !GetAtt 'OriginBucket.RegionalDomainName'
        S3OriginConfig:
          OriginAccessIdentity: !Join
            - '
              - origin-access-identity/cloudfront/
              - !Ref 'OriginBucketOai'
    DefaultCacheBehavior:
      ViewerProtocolPolicy: https-only
      TargetOriginId: sampleS3Origin
      CachePolicyId: !Ref 'CachePolicy'

CT.CLOUDFRONT.PR.2 rule specification

# #########################################################
##       Rule Specification        ##
# #########################################################
# Rule Identifier:
# cloudfront_origin_access_identity_enabled_check
#
# Description:
# This control checks whether Amazon CloudFront distributions backed by Amazon S3 are
# configured with an origin access identity.
#
# Reports on:
# AWS::CloudFront::Distribution
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any CloudFront distribution resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudFront distribution resource
# And: No S3 backed 'Origins' are provided on the CloudFront distribution
# resource or 'Origins' is not present on
# the CloudFront distribution resource or is present and an empty list
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudFront distribution resource
# And: 'S3Origin' is present on the CloudFront distribution resource
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudFront distribution resource
# And: One or more S3 backed 'Origins' are configured on the CloudFront
distribution resource
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more S3 backed 'Origins' are provided on the CloudFront distribution resource
# And: 'S3OriginConfig' is present with an 'OriginAccessIdentity' for each S3 backed 'Origin' on the CloudFront distribution resource that is a non-empty string or valid local reference
# Then: PASS

# Constants
let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
lst S3_BUCKET_DNS_NAME_PATTERN = /(.*)\.s3(-external-\d|[-.][a-z]*-[a-z]*-[0-9])?.amazonaws\.com\.(cn)?$/
let INPUT_DOCUMENT = this

# Assignments
let cloudfront_distributions = Resources.*[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]

# Primary Rules
rule cloudfront_origin_access_identity_enabled_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %cloudfront_distributions not empty {
    check(%cloudfront_distributions.Properties)
    <<
      [CT.CLOUDFRONT.PR.2]: Require any Amazon CloudFront distributions with Amazon S3 backed origins to have an origin access identity configured
      [FIX]: Configure Amazon S3 backed origins by means of the 'Origins' property. For each origin backed by Amazon S3, configure an origin access identity by means of the 'OriginAccessIdentity' property within an 'S3OriginConfig' configuration.
    >>
  }
rule cloudfront_origin_access_identity_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDFRONT DISTRIBUTION TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDFRONT DISTRIBUTION TYPE.resourceProperties)
    <<
    [CT.CLOUDFRONT.PR.2]: Require any Amazon CloudFront distributions with Amazon S3 backed origins to have an origin access identity configured
    [FIX]: Configure Amazon S3 backed origins by means of the 'Origins' property. For each origin backed by Amazon S3, configure an origin access identity by means of the 'OriginAccessIdentity' property within an 'S3OriginConfig' configuration.
    >>
}

# # Parameterized Rules #
rule check(cloudfront_distribution) {
    %cloudfront_distribution[
        filter_cloudfront_distribution_with_legacy_s3_origins(this)
    ] {
        DistributionConfig {
            # Scenario 3
            S3Origin not exists
        }
    }

    %cloudfront_distribution[
        # Scenario 2
        filter_cloudfront_distribution_with_origins(this)
    ] {
        DistributionConfig {
            # Scenario 4
            Origins [
                DomainName == %S3_BUCKET DNS_NAME_PATTERN or
                check_origin_domain_name_get_att(DomainName)
            ] {
                S3OriginConfig exists
                S3OriginConfig is_struct
                S3OriginConfig {
                    # Scenario 3 and 5
                    OriginAccessIdentity exists
                    check_is_string_and_not_empty(OriginAccessIdentity) or
                    check_local_oai(OriginAccessIdentity)
                }
            }
        }
    }

Proactive controls
493
rule check_origin_domain_name_get_att(domain) {
  %domain {
    'Fn::GetAtt' {
      this this is_list
      this this not empty
      this[1] == "DomainName" or
      this[1] == "RegionalDomainName"
    }
    check_local_references(%INPUT_DOCUMENT, this, "AWS::S3::Bucket")
  }
}

rule check_local_oai(oai) {
  %oai {
    'Fn::Join' {
      this[1] exists
      this[1] is_list
      this[1] not empty
      some this[1].* {
        check_local_references(%INPUT_DOCUMENT, this, "AWS::CloudFront::CloudFrontOriginAccessIdentity")
      }
    } or
    'Fn::Sub' {
      when this is_list {
        this[1] exists
        this[1] is_struct
        some this[1].* {
          check_local_references(%INPUT_DOCUMENT, this, "AWS::CloudFront::CloudFrontOriginAccessIdentity")
        }
      }
      when this is_string {
        check_is_string_and_not_empty(this)
      }
    }
  }
}
```yaml
rule filter_cloudfront_distribution_with_origins(cloudfront_distribution) {
  %cloudfront_distribution {
    DistributionConfig exists
    DistributionConfig is_struct

    DistributionConfig {
      Origins exists
      Origins is_list
      Origins not empty
    }
  }
}

rule filter_cloudfront_distribution_with_legacy_s3_origins(cloudfront_distribution) {
  %cloudfront_distribution {
    DistributionConfig exists
    DistributionConfig is_struct

    DistributionConfig {
      S3Origin exists
    }
  }
}

# Utility Rules

rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /\A\s*\z/
  }
}

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```
rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_resource_type)
            <<Local Stack reference was invalid>>
        }
    }
}  

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    %referenced_resource not empty
    %referenced_resource {
        Type == %referenced_resource_type
    }
}  

CT.CLOUDFRONT.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:
          Fn::Sub: ${AWS::StackName}-example-cache-policy
      ParametersInCacheKeyAndForwardedToOrigin:
        CookiesConfig:
          CookieBehavior: none
EnableAcceptEncodingGzip: false
HeadersConfig:
  HeaderBehavior: none
QueryStringsConfig:
  QueryStringBehavior: none

OriginBucketOai:
  Type: AWS::CloudFront::CloudFrontOriginAccessIdentity
Properties:
  CloudFrontOriginAccessIdentityConfig:
    Comment:
      Fn::Sub: ${AWS::StackName}-example-oai

OriginBucket:
  Type: AWS::S3::Bucket

OriginBucketPolicy:
  Type: AWS::S3::BucketPolicy
Properties:
  Bucket:
    Ref: OriginBucket
  PolicyDocument:
    Version: 2012-10-17
    Statement:
      - Action:
        - 's3:GetObject'
      Effect: Allow
      Resource:
        Fn::Join:
          - ''
          - - 'arn:aws:s3:::'
            - Ref: OriginBucket
          - /*
      Principal:
        AWS:
          Fn::Join:
            - ''
            - - 'arn:aws:iam::cloudfront:user/CloudFront Origin Access Identity'
            - Ref: OriginBucketOai

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
Properties:
  DistributionConfig:
    Enabled: false
    Origins:
      - Id: exampleS3Origin
        DomainName:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

CachePolicy:
  Type: AWS::CloudFront::CachePolicy
  Properties:
    CachePolicyConfig:
      DefaultTTL: 20
      MaxTTL: 20
      MinTTL: 19
      Name:
        Fn::Sub: ${AWS::StackName}-example-cache-policy
      ParametersInCacheKeyAndForwardedToOrigin:
        CookiesConfig:
          CookieBehavior: none
        EnableAcceptEncodingGzip: false
        HeadersConfig:
          HeaderBehavior: none
        QueryStringsConfig:
          QueryStringBehavior: none
      CloudFrontDistribution:
        Type: AWS::CloudFront::Distribution
        Properties:
          DistributionConfig:
**[CT.CLOUDFRONT.PR.3] Require an Amazon CloudFront distribution to have encryption in transit configured**

This control checks whether your Amazon CloudFront distributions use HTTPS, either directly or through a redirection.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CloudFront::Distribution
- **AWS CloudFormation guard rule:** [CT.CLOUDFRONT.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDFRONT.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDFRONT.PR.3 example templates](#)

**Explanation**

HTTPS (TLS) can help prevent potential attackers from attempting person-in-the-middle or similar attacks, which can eavesdrop on or manipulate network traffic. Only encrypted connections over HTTPS (TLS) should be allowed. Encrypting data in transit can affect performance. We recommend
that you test your application with this feature to understand the performance profile and the impact of TLS.

**Remediation for rule failure**

Set `ViewerProtocolPolicy` in `DefaultCacheBehavior` and `CacheBehavior` to `https-only` or `redirect-to-https`.

The examples that follow show how to implement this remediation.

**Amazon CloudFront Distribution - Example One**

Amazon CloudFront distribution configured with a default cache behavior that requires viewer connections to use HTTPS. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "CloudFrontDistribution": {
        "Type": "AWS::CloudFront::Distribution",
        "Properties": {
            "DistributionConfig": {
                "Enabled": false,
                "Origins": [
                    {
                        "Id": "sampleOrigin",
                        "DomainName": "example.com",
                        "CustomOriginConfig": {
                            "OriginProtocolPolicy": "https-only"
                        }
                    }
                ],
                "DefaultCacheBehavior": {
                    "ViewerProtocolPolicy": "https-only",
                    "TargetOriginId": "sampleOrigin",
                    "CachePolicyId": {
                        "Ref": "CachePolicy"
                    }
                }
            }
        }
    }
}
```
YAML example

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
      Origins:
      - Id: sampleOrigin
        DomainName: example.com
        CustomOriginConfig:
          OriginProtocolPolicy: https-only
    DefaultCacheBehavior:
      ViewerProtocolPolicy: https-only
      TargetOriginId: sampleOrigin
      CachePolicyId: !Ref 'CachePolicy'

The examples that follow show how to implement this remediation.

Amazon CloudFront Distribution - Example Two

Amazon CloudFront distribution configured with a cache behavior that redirects viewer HTTP connections to HTTPS. The example is shown in JSON and in YAML.

JSON example

```json
{
  "CloudFrontDistribution": {
    "Type": "AWS::CloudFront::Distribution",
    "Properties": {
      "DistributionConfig": {
        "Enabled": false,
        "Origins": [
          {
            "Id": "sampleOrigin",
            "DomainName": "example.com",
          }
        ],
      }
    }
  }
}
```
"CustomOriginConfig": {
  "OriginProtocolPolicy": "https-only"
}

"DefaultCacheBehavior": {
  "ViewerProtocolPolicy": "https-only",
  "TargetOriginId": "sampleOrigin",
  "CachePolicyId": {
    "Ref": "CachePolicy"
  }
},
"CacheBehaviors": [
  {
    "ViewerProtocolPolicy": "redirect-to-https",
    "TargetOriginId": "sampleOrigin",
    "PathPattern": "*"
  }
]

YAML example

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
      Origins:
        - Id: sampleOrigin
          DomainName: example.com
          CustomOriginConfig:
            OriginProtocolPolicy: https-only
      DefaultCacheBehavior:
        ViewerProtocolPolicy: https-only
        TargetOriginId: sampleOrigin
        CachePolicyId: !Ref 'CachePolicy'
      CacheBehaviors:
CT.CLOUDFRONT.PR.3 rule specification

# ##########################################################################
##       Rule Specification        ##
##########################################################################
#
# Rule Identifier:
#   cloudfront_viewer_policy_https_check
#
# Description:
#   This control checks whether your Amazon CloudFront distributions use HTTPS, either
directly or through a redirection.
#
# Reports on:
#   AWS::CloudFront::Distribution
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any CloudFront distribution resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a CloudFront distribution resource
#     And: 'DistributionConfig.DefaultCacheBehavior' is missing on the CloudFront
distribution resource
#     Then: FAIL
#   Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'DistributionConfig.DefaultCacheBehavior' is present on the CloudFront distribution resource
# And: 'ViewerProtocolPolicy' in 'DefaultCacheBehavior' is missing or set to a value other than 'https-only' or 'redirect-to-https' (e.g. 'allow-all')
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'DistributionConfig.CacheBehavior' is provided on the CloudFront distribution resource
# And: 'ViewerProtocolPolicy' in the 'CacheBehavior' is missing or set to a value other than 'https-only' or 'redirect-to-https' (e.g. 'allow-all')
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'DistributionConfig.DefaultCacheBehavior' is present on the CloudFront distribution resource
# And: 'ViewerProtocolPolicy' in 'DefaultCacheBehavior' is set to 'https-only' or 'redirect-to-https'
# Then: PASS

# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'DistributionConfig.CacheBehavior' are provided on the CloudFront distribution resource as a non-empty list
# And: 'ViewerProtocolPolicy' in the 'CacheBehavior' is set to 'https-only' or 'redirect-to-https'
# Then: PASS

# Constants
#
let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
let ALLOWED_VIEWER_PROTOCOL_POLICIES = [ "https-only", "redirect-to-https" ]
let INPUT_DOCUMENT = this
# Assignments

let cloudfront_distributions = Resources.*[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]

# Primary Rules

countlet cloudfront_distribution
rule cloudfront_viewer_policy_https_check when is_cfn_template(%INPUT_DOCUMENT)
    %cloudfront_distributions not empty {
        check(%cloudfront_distributions.Properties)
        <<
        [CT.CLOUDFRONT.PR.3]: Require an Amazon CloudFront distribution to have encryption in transit configured
        [FIX]: Set 'ViewerProtocolPolicy' in 'DefaultCacheBehavior' and 'CacheBehavior' to 'https-only' or 'redirect-to-https'.
        >>
    }

rule cloudfront_viewer_policy_https_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDFRONT_DISTRIBUTION_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDFRONT_DISTRIBUTION_TYPE.resourceProperties)
    <<
    [CT.CLOUDFRONT.PR.3]: Require an Amazon CloudFront distribution to have encryption in transit configured
    [FIX]: Set 'ViewerProtocolPolicy' in 'DefaultCacheBehavior' and 'CacheBehavior' to 'https-only' or 'redirect-to-https'.
    >>
}

# Parameterized Rules

countlet cloudfront_distribution
rule check(cloudfront_distribution) {
    %cloudfront_distribution {
        DistributionConfig exists
        DistributionConfig is_struct

        DistributionConfig {
            DefaultCacheBehavior exists
            DefaultCacheBehavior is_struct

            DefaultCacheBehavior {

            }
        }
    }
}
# Scenarios 2 and 4

check_viewer_protocol_policy(this)

when CacheBehaviors exists

CacheBehaviors is_list

CacheBehaviors not empty {

	CacheBehaviors[*] {
		# Scenarios 3 and 5
		check_viewer_protocol_policy(this)

	}

}

}


rule check_viewer_protocol_policy(cache_behaviour) {

	%cache_behaviour {
		ViewerProtocolPolicy exists
		ViewerProtocolPolicy in %ALLOWED_VIEWER_PROTOCOL_POLICIES

	}

}

#

# Utility Rules
#

rule is_cfn_template(doc) {

	%doc {
		AWSTemplateFormatVersion exists or
		Resources exists

	}

}

rule is_cfn_hook(doc, RESOURCE_TYPE) {

	%doc.%RESOURCE_TYPE.resourceProperties exists

}
You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:
          Fn::Sub: `${AWS::StackName}-example-cache-policy`

ParametersInCacheKeyAndForwardedToOrigin:
  CookiesConfig:
    CookieBehavior: none
  EnableAcceptEncodingGzip: false
  HeadersConfig:
    HeaderBehavior: none
  QueryStringsConfig:
    QueryStringBehavior: none

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
      Origins:
        - Id: exampleOrigin
          DomainName: example.com
          CustomOriginConfig:
            OriginProtocolPolicy: https-only
      DefaultCacheBehavior:
        ViewerProtocolPolicy: https-only
        TargetOriginId: exampleOrigin
        CachePolicyId:
          Ref: CachePolicy
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
CachePolicy:
  Type: AWS::CloudFront::CachePolicy
  Properties:
    CachePolicyConfig:
      DefaultTTL: 20
      MaxTTL: 20
      MinTTL: 19
      Name:
        Fn::Sub: ${AWS::StackName}-example-cache-policy
  ParametersInCacheKeyAndForwardedToOrigin:
    CookiesConfig:
      CookieBehavior: none
    EnableAcceptEncodingGzip: false
    HeadersConfig:
      HeaderBehavior: none
    QueryStringsConfig:
      QueryStringBehavior: none
CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
    Origins:
      - Id: exampleOrigin
        DomainName: example.com
        CustomOriginConfig:
          OriginProtocolPolicy: https-only
    DefaultCacheBehavior:
      ViewerProtocolPolicy: allow-all
      TargetOriginId: exampleOrigin
    CachePolicyId:
      Ref: CachePolicy
[CT.CLOUDFRONT.PR.4] Require an Amazon CloudFront distribution to have origin failover configured

This control checks whether your Amazon CloudFront distribution is configured with an origin group that contains two origin group members.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CloudFront::Distribution
- **AWS CloudFormation guard rule:** [CT.CLOUDFRONT.PR.4 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDFRONT.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDFRONT.PR.4 example templates](#)

**Explanation**

CloudFront origin failover can increase availability. Origin failover automatically redirects traffic to a secondary origin if the primary origin is unavailable or if it returns specific HTTP response status codes.

**Remediation for rule failure**

Configure an origin group on the Amazon CloudFront Distribution with two origin group members.

The examples that follow show how to implement this remediation.

**Amazon CloudFront Distribution - Example One**

Amazon CloudFront distribution configured with an origin group that contains two origin group members. The example is shown in JSON and in YAML.

**JSON example**

```json
{
}
```
"CloudFrontDistribution": {
  "Type": "AWS::CloudFront::Distribution",
  "Properties": {
    "DistributionConfig": {
      "Enabled": false,
      "Origins": [
        {
          "Id": "sampleOrigin",
          "DomainName": "one.example.com",
          "CustomOriginConfig": {
            "OriginProtocolPolicy": "https-only"
          }
        },
        {
          "Id": "sampleOrigin2",
          "DomainName": "two.example.com",
          "CustomOriginConfig": {
            "OriginProtocolPolicy": "https-only"
          }
        }
      ],
      "DefaultCacheBehavior": {
        "ViewerProtocolPolicy": "https-only",
        "TargetOriginId": "sampleOrigin",
        "CachePolicyId": {
          "Ref": "CachePolicy"
        }
      },
      "OriginGroups": {
        "Quantity": 1,
        "Items": [
          {
            "Id": "ExampleOriginGroup",
            "FailoverCriteria": {
              "StatusCodes": {
                "Items": [
                  400
                ],
                "Quantity": 1
              }
            },
            "Members": {
              "Quantity": 2,
              "Items": [
YAML example

```yaml
CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
      Origins:
        - Id: sampleOrigin
          DomainName: one.example.com
          CustomOriginConfig:
            OriginProtocolPolicy: https-only
        - Id: sampleOrigin2
          DomainName: two.example.com
          CustomOriginConfig:
            OriginProtocolPolicy: https-only
      DefaultCacheBehavior:
        ViewerProtocolPolicy: https-only
        TargetOriginId: sampleOrigin
        CachePolicyId: !Ref 'CachePolicy'
      OriginGroups:
        Quantity: 1
        Items:
          - Id: ExampleOriginGroup
            FailoverCriteria:
```
StatusCodes:
   Items:
      - 400
   Quantity: 1
Members:
   Quantity: 2
   Items:
      - OriginId: sampleOrigin
      - OriginId: sampleOrigin2

CT.CLOUDFRONT.PR.4 rule specification

# ####################################################################
##       Rule Specification        ##
# ####################################################################
#
# Rule Identifier:
#   cloudfront_origin_failover_enabled_check
#
# Description:
#   This control checks whether your Amazon CloudFront distribution is configured with
#   an origin group that contains two origin group members.
#
# Reports on:
#   AWS::CloudFront::Distribution
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#      Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#          document
#      And: The input document does not contain any CloudFront distribution resources
#      Then: SKIP
#   Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'OriginGroups' is not present on the CloudFront distribution resource
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'OriginGroups' is present on the CloudFront distribution resource
# And: 'Quantity' within 'OriginGroups' is 0
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'OriginGroups' is present on the CloudFront distribution resource
# And: 'Quantity' within 'OriginGroups' is >= 1
# And: 'Quantity' within 'Members' is < 2
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'OriginGroups' is present on the CloudFront distribution resource
# And: 'Quantity' within 'OriginGroups' is >= 1
# And: 'Quantity' within 'Members' is == 2
# Then: PASS

# Constants
#
let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
let INPUT_DOCUMENT = this

#
# Assignments
#
let cloudfront_distributions = Resources.*[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]

#
# Primary Rules
#
rule cloudfront_origin_failover_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%cloudfront_distributions not empty
{
    check(%cloudfront_distributions.Properties)
    <<
        [CT.CLOUDFRONT.PR.4]: Require an Amazon CloudFront distribution to have origin failover configured
        [FIX]: Configure an origin group on the Amazon CloudFront Distribution with two origin group members.
    >>
}

rule cloudfront_origin_failover_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDFRONT_DISTRIBUTION_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDFRONT_DISTRIBUTION_TYPE.resourceProperties)
    <<
        [CT.CLOUDFRONT.PR.4]: Require an Amazon CloudFront distribution to have origin failover configured
        [FIX]: Configure an origin group on the Amazon CloudFront Distribution with two origin group members.
    >>
}

# # Parameterized Rules #
# rule check(cloudfront_distribution) {
%cloudfront_distribution {
    DistributionConfig exists
    DistributionConfig is_struct

    DistributionConfig {
        # Scenario 2
        OriginGroups exists
        OriginGroups is_struct

        OriginGroups {
            # Scenario 3
            Quantity exists
            Quantity >= 1

            Items exists
            Items is_list
            Items not empty
        }
    }
}

514
# Utility Rules

```bash
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

CT.CLOUDFRONT.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
- CachePolicy:
  - Type: AWS::CloudFront::CachePolicy
  - Properties:
    - CachePolicyConfig:
      - DefaultTTL: 20
      - MaxTTL: 20
MinTTL: 19
Name: 
  Fn::Sub: ${AWS::StackName}-example-cache-policy
ParametersInCacheKeyAndForwardedToOrigin:
  CookiesConfig:
    CookieBehavior: none
  EnableAcceptEncodingGzip: false
  HeadersConfig:
    HeaderBehavior: none
  QueryStringsConfig:
    QueryStringBehavior: none
CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
    Origins:
      - Id: exampleOrigin
        DomainName: one.example.com
        CustomOriginConfig:
          OriginProtocolPolicy: https-only
      - Id: exampleOrigin2
        DomainName: two.example.com
        CustomOriginConfig:
          OriginProtocolPolicy: https-only
  DefaultCacheBehavior:
    ViewerProtocolPolicy: https-only
    TargetOriginId: exampleOrigin
    CachePolicyId:
      Ref: CachePolicy
  OriginGroups:
    Quantity: 1
    Items:
      - Id: ExampleOriginGroup
        FailoverCriteria:
          StatusCodes:
            Items:
              - 400
            Quantity: 1
          Members:
            Quantity: 2
            Items:
              - OriginId: exampleOrigin
              - OriginId: exampleOrigin2
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
CachePolicy:
  Type: AWS::CloudFront::CachePolicy
  Properties:
    CachePolicyConfig:
      DefaultTTL: 20
      MaxTTL: 20
      MinTTL: 19
    Name:
      Fn::Sub: ${AWS::StackName}-example-cache-policy
ParametersInCacheKeyAndForwardedToOrigin:
  CookiesConfig:
    CookieBehavior: none
  EnableAcceptEncodingGzip: false
HeadersConfig:
  HeaderBehavior: none
QueryStringsConfig:
  QueryStringBehavior: none
CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
    Origins:
      - Id: exampleOrigin
        DomainName: example.com
        CustomOriginConfig:
          OriginProtocolPolicy: https-only
    DefaultCacheBehavior:
      ViewerProtocolPolicy: https-only
      TargetOriginId: exampleOrigin
    CachePolicyId:
      Ref: CachePolicy
[CT.CLOUDFRONT.PR.5] Require any Amazon CloudFront distribution to have logging enabled

This control checks whether Amazon CloudFront distributions are configured with access logging.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CloudFront::Distribution
- **AWS CloudFormation guard rule:** [CT.CLOUDFRONT.PR.5 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDFRONT.PR.5 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDFRONT.PR.5 example templates](#)

**Explanation**

CloudFront access logs provide detailed information about every user request that CloudFront receives. Each log contains information such as the date and time the request was received, the IP address of the viewer that made the request, the source of the request, and the port number of the request from the viewer.

These access logs are useful for applications such as security and access audits, and in forensic investigation.

**Remediation for rule failure**

Set Bucket in DistributionConfig.Logging to an Amazon S3 bucket that has been configured to receive Amazon CloudFront distribution access logs.

The examples that follow show how to implement this remediation.

**Amazon CloudFront Distribution - Example**

Amazon CloudFront distribution configured with access logging enabled. The example is shown in JSON and in YAML.

**JSON example**
YAML example

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:

Proactive controls
DistributionConfig:
  Enabled: false
Origins:
  - Id: sampleOrigin
    DomainName: example.com
    CustomOriginConfig:
      OriginProtocolPolicy: https-only
DefaultCacheBehavior:
  ViewerProtocolPolicy: https-only
  TargetOriginId: sampleOrigin
  CachePolicyId: !Ref 'CachePolicy'
Logging:
  Bucket: !GetAtt 'LoggingBucket.RegionalDomainName'

CT.CLOUDFRONT.PR.5 rule specification

# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#  cloudfront_access_logs_enabled_check
#
# Description:
#  This control checks whether Amazon CloudFront distributions are configured with
#   access logging.
#
# Reports on:
#  AWS::CloudFront::Distribution
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#  None
#
# Scenarios:
#  Scenario: 1
#  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# Given: The input document contains a CloudFront distribution resource
# And: 'DistributionConfig.Logging.Bucket' configuration is not present on the
# CloudFront distribution resource
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudFront distribution resource
# And: 'DistributionConfig.Logging' configuration is present on the CloudFront
distribution resource
# And: 'Bucket' has been provided in the 'DistributionConfig.Logging'
configuration with with an empty string or
# invalid local reference
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudFront distribution resource
# And: 'DistributionConfig.Logging' configuration is present on the CloudFront
distribution resource
# And: A 'Bucket' property has been provided within the
'DistributionConfig.Logging' configuration with a
# non-empty string or valid local stack reference
# Then: PASS

# Constants
#
let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
let S3_BUCKET_TYPE = "AWS::S3::Bucket"
let INPUT_DOCUMENT = this

# Assignments
#
let cloudfront_distributions = Resources.*[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]
# rule cloudfront_access_logs_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%cloudfront_distributions not empty {
    check(%cloudfront_distributions.Properties)
    <<
    [CT.CLOUDFRONT.PR.5]: Require any Amazon CloudFront distribution to have
    logging enabled
    [FIX]: Set 'Bucket' in 'DistributionConfig.Logging' to an Amazon S3 bucket
    that has been configured to receive Amazon CloudFront distribution access logs.
    >>
}

rule cloudfront_access_logs_enabled_check when is_cfn_hook(%INPUT_DOCUMENT,
%CLOUDFRONT_DISTRIBUTION_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDFRONT_DISTRIBUTION_TYPE.resourceProperties)
    <<
    [CT.CLOUDFRONT.PR.5]: Require any Amazon CloudFront distribution to have
    logging enabled
    [FIX]: Set 'Bucket' in 'DistributionConfig.Logging' to an Amazon S3 bucket
    that has been configured to receive Amazon CloudFront distribution access logs.
    >>
}

# # Parameterized Rules
#
rule check(cloudfront_distribution) {
    %cloudfront_distribution {
        DistributionConfig exists
        DistributionConfig is_struct

        DistributionConfig {
            Logging exists
            Logging is_struct
            Logging {
                # Scenario 2
                Bucket exists

                # Scenarios 3 and 4
                check_is_string_and_not_empty(Bucket) or
                check_local_references(%INPUT_DOCUMENT, Bucket, %S3_BUCKET_TYPE)
            }
        }
    }
}
# Utility Rules

rule check_is_string_and_not_empty(value) {  
    %value {  
        this is_string  
        this != /\A\s*\z/  
    }  
}

rule is_cfn_template(doc) {  
    %doc {  
        AWSTemplateFormatVersion exists or  
        Resources exists  
    }  
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {  
    %doc.%RESOURCE_TYPE.resourceProperties exists  
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {  
    %reference_properties {  
        'Fn::GetAtt' {  
            query_for_resource(%doc, this[0], %referenced_resource_type)  
            <<Local Stack reference was invalid>>  
        } or Ref {  
            query_for_resource(%doc, this, %referenced_resource_type)  
            <<Local Stack reference was invalid>>  
        }  
    }  
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {  
    let referenced_resource = %doc.Resources[ keys == %resource_key ]  
    %referenced_resource not empty  
    %referenced_resource {  
        Type == %referenced_resource_type  
    }  
}
**CT.CLOUDFRONT.PR.5 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example - Use this template to verify a compliant resource creation.**

```json
Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:
          Fn::Sub: ${AWS::StackName}-example-cache-policy
  ParametersInCacheKeyAndForwardedToOrigin:
    CookiesConfig:
      CookieBehavior: none
      EnableAcceptEncodingGzip: false
    HeadersConfig:
      HeaderBehavior: none
    QueryStringsConfig:
      QueryStringBehavior: none
  LoggingBucket:
    Type: AWS::S3::Bucket
    Properties: {}  
  LoggingBucketPolicy:
    Type: AWS::S3::BucketPolicy
    Properties:
      Bucket:
        Ref: LoggingBucket
      PolicyDocument:
        Version: 2012-10-17
        Statement:
          - Action:
              - 's3:GetBucketAcl'
              - 's3:PutBucketAcl'
            Effect: Allow
```
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
[CT.CLOUDFRONT.PR.6] Require an Amazon CloudFront distribution to use custom SSL/TLS certificates

This control checks whether the certificate associated with an Amazon CloudFront distribution is a custom SSL/TLS certificate.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CloudFront::Distribution
- **AWS CloudFormation guard rule:** [CT.CLOUDFRONT.PR.6 rule specification](#)

Details and examples
• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDFRONT.PR.6 rule specification](#)
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDFRONT.PR.6 example templates](#)

**Explanation**

Custom SSL/TLS certificates give your users access to content by using alternate domain names. You can store custom certificates in AWS Certificate Manager (recommended), or in IAM.

**Usage considerations**

- This control requires a viewer certificate configuration compatible only with Amazon CloudFront distributions that use Aliases, also known as alternate domain names or CNAMEs.

**Remediation for rule failure**


The examples that follow show how to implement this remediation.

**Amazon CloudFront Distribution - Example**

Amazon CloudFront distribution configured with an AWS Certificate Manager SSL certificate. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "CloudFrontDistribution": {
      "Type": "AWS::CloudFront::Distribution",
      "Properties": {
         "DistributionConfig": {
            "Enabled": false,
            "Origins": [
               
            ]
       
```
"Id": "sampleOrigin",
"DomainName": "example.com",
"CustomOriginConfig": {
    "OriginProtocolPolicy": "https-only"
}
],
"DefaultCacheBehavior": {
    "ViewerProtocolPolicy": "https-only",
    "TargetOriginId": "sampleOrigin",
    "CachePolicyId": {
        "Ref": "CachePolicy"
    }
},
"ViewerCertificate": {
    "AcmCertificateArn": {
        "Ref": "ACMCertificate"
    },
    "MinimumProtocolVersion": "TLSv1.2_2021",
    "SslSupportMethod": "sni-only"
}
}

YAML example

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
    Origins:
      - Id: sampleOrigin
        DomainName: example.com
        CustomOriginConfig:
          OriginProtocolPolicy: https-only
    DefaultCacheBehavior:
      ViewerProtocolPolicy: https-only
      TargetOriginId: sampleOrigin
CachePolicyId: !Ref 'CachePolicy'
ViewerCertificate:
  AcmCertificateArn: !Ref 'ACMCertificate'
MinimumProtocolVersion: TLSv1.2_2021
SslSupportMethod: sni-only

CT.CLOUDFRONT.PR.6 rule specification

# ###################################################################################################################
##       Rule Specification        ##
####################################################################################################################
#
# Rule Identifier:
#   cloudfront_custom_ssl_certificate_check
#
# Description:
#   This control checks whether the certificate associated with an Amazon CloudFront distribution is a custom SSL/TLS certificate.
#
# Reports on:
#   AWS::CloudFront::Distribution
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any CloudFront distribution resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a CloudFront distribution resource
#     And: 'ViewerCertificate' is not present on the CloudFront distribution resource
#     Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudFront distribution resource
# And: 'ViewerCertificate' is present on the CloudFront distribution resource
# And: 'CloudFrontDefaultCertificate' is set to bool(true)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudFront distribution resource
# And: 'ViewerCertificate' is present on the CloudFront distribution resource
# And: One of 'AcmCertificateArn' or 'IamCertificateId' are not provided or
# provided as empty strings or invalid
# local references
# And: One of 'MinimumProtocolVersion' and 'SslSupportMethod' is not provided or
# provided as an empty string
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudFront distribution resource
# And: 'ViewerCertificate' is present on the CloudFront distribution resource
# And: 'AcmCertificateArn' or 'IamCertificateId' are provided in the
# 'ViewerCertificate' configuration as
# non-empty strings or 'AcmCertificateArn' is a valid local reference
# And: 'MinimumProtocolVersion' and 'SslSupportMethod' are provided as non-empty
# strings
# Then: PASS

#
# Constants
#
let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
let INPUT_DOCUMENT = this

#
# Assignments
#
let cloudfront_distributions = Resources.*[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]

#
# Primary Rules
#
rule cloudfront_custom_ssl_certificate_check when is_cfn_template(%INPUT_DOCUMENT) %cloudfront_distributions not empty {
    check(%cloudfront_distributions.Properties) <<
    [CT.CLOUDFRONT.PR.6]: Require an Amazon CloudFront distribution to use custom SSL/TLS certificates
    [FIX]: Provide a 'ViewerCertificate' configuration with values for 'AcmCertificateArn', 'MinimumProtocolVersion', and 'SslSupportMethod'.
    >>
}

rule cloudfront_custom_ssl_certificate_check when is_cfn_hook(%INPUT_DOCUMENT,%CLOUDFRONT_DISTRIBUTION_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDFRONT_DISTRIBUTION_TYPE.resourceProperties) <<
    [CT.CLOUDFRONT.PR.6]: Require an Amazon CloudFront distribution to use custom SSL/TLS certificates
    [FIX]: Provide a 'ViewerCertificate' configuration with values for 'AcmCertificateArn', 'MinimumProtocolVersion', and 'SslSupportMethod'.
    >>
}

# # Parameterized Rules #

# rule check(cloudfront_distribution) {
#    %cloudfront_distribution {
#        DistributionConfig exists
#        DistributionConfig is_struct
#
#        DistributionConfig {
#            ViewerCertificate exists
#            ViewerCertificate is_struct
#
#            ViewerCertificate {
#                CloudFrontDefaultCertificate not exists or
#                CloudFrontDefaultCertificate == false
#
#                check_custom_acm_certificate_provided(AcmCertificateArn, "AWS::CertificateManager::Certificate") or
#                check_custom_iam_certificate_provided(IamCertificateId)
#
#                MinimumProtocolVersion exists
#                check_is_string_and_not_empty(MinimumProtocolVersion)
#    }
#}

Proactive controls
SslSupportMethod exists
    check_is_string_and_not_empty(SslSupportMethod)
}

rule check_custom_acm_certificate_provided(certificate, cfn_type) {
    %certificate {
        this exists
        check_is_string_and_not_empty(this) or
        check_local_references(%INPUT_DOCUMENT, this, %cfn_type)
    }
}

rule check_custom_iam_certificate_provided(certificate) {
    %certificate {
        this exists
        check_is_string_and_not_empty(this)
    }
}

# Utility Rules
#
rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.CLOUDFRONT.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:
          Fn::Sub: ${AWS::StackName}-example-cache-policy
      ParametersInCacheKeyAndForwardedToOrigin:
        CookiesConfig:
          CookieBehavior: none
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
Properties:
  CachePolicyConfig:
    DefaultTTL: 20
    MaxTTL: 20
    MinTTL: 19
    Name:
      Fn::Sub: ${AWS::StackName}-example-cache-policy
ParametersInCacheKeyAndForwardedToOrigin:
  CookiesConfig:
    CookieBehavior: none
    EnableAcceptEncodingGzip: false
  HeadersConfig:
    HeaderBehavior: none
  QueryStringsConfig:
    QueryStringBehavior: none
CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
Properties:
  DistributionConfig:
    Enabled: false
  Origins:
    - Id: exampleOrigin
      DomainName: example.com
      CustomOriginConfig:
        OriginProtocolPolicy: https-only
  DefaultCacheBehavior:
    ViewerProtocolPolicy: https-only
    TargetOriginId: exampleOrigin
    CachePolicyId:
      Ref: CachePolicy
  ViewerCertificate:
    CloudFrontDefaultCertificate: true

[CT.CLOUDFRONT.PR.7] Require an Amazon CloudFront distribution to use SNI to serve HTTPS requests

This control checks whether your Amazon CloudFront distributions are configured to use SNI to serve HTTPS requests.

- **Control objective:** Encrypt data in transit, Improve availability
- **Implementation:** AWS CloudFormation Guard Rule
Control behavior: Proactive

Resource types: AWS::CloudFront::Distribution

AWS CloudFormation guard rule: CT.CLOUDFRONT.PR.7 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.CLOUDFRONT.PR.7 rule specification
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.CLOUDFRONT.PR.7 example templates

Explanation

Server Name Indication (SNI) is an extension to the TLS protocol. It is supported by browsers and clients released after 2010. If you configure CloudFront to serve HTTPS requests using SNI, CloudFront associates your alternate domain name with an IP address for each edge location. When a viewer submits an HTTPS request for your content, DNS routes the request to the IP address for the correct edge location. The IP address for your domain name is determined during the SSL/TLS handshake negotiation; the IP address isn't dedicated to your distribution.

Usage considerations

- This control requires a viewer certificate configuration which is only compatible with Amazon CloudFront distributions that use Aliases (also known as alternate domain names or CNAMEs)

Remediation for rule failure

Within ViewerCertificate, set SslSupportMethod to sni-only, MinimumProtocolVersion to a protocol that supports SNI (TLSv1 or greater), and AcmCertificateArn to the ARN of an AWS ACM certificate.

The examples that follow show how to implement this remediation.
Amazon CloudFront Distribution - Example

Amazon CloudFront distribution configured to use SNI to serve HTTPS requests. The example is shown in JSON and in YAML.

JSON example

```json
{
    "CloudFrontDistribution": {
        "Type": "AWS::CloudFront::Distribution",
        "Properties": {
            "DistributionConfig": {
                "Enabled": false,
                "Origins": [
                    {
                        "Id": "sampleOrigin",
                        "DomainName": "example.com",
                        "CustomOriginConfig": {
                            "OriginProtocolPolicy": "https-only"
                        }
                    }
                ],
                "DefaultCacheBehavior": {
                    "ViewerProtocolPolicy": "https-only",
                    "TargetOriginId": "sampleOrigin",
                    "CachePolicyId": {
                        "Ref": "CachePolicy"
                    }
                },
                "ViewerCertificate": {
                    "AcmCertificateArn": {
                        "Ref": "ACMCertificate"
                    },
                    "MinimumProtocolVersion": "TLSv1.2_2021",
                    "SslSupportMethod": "sni-only"
                }
            }
        }
    }
}
```
YAML example

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
      Origins:
        - Id: sampleOrigin
          DomainName: example.com
          CustomOriginConfig:
            OriginProtocolPolicy: https-only
    DefaultCacheBehavior:
      ViewerProtocolPolicy: https-only
      TargetOriginId: sampleOrigin
      CachePolicyId: !Ref 'CachePolicy'
    ViewerCertificate:
      AcmCertificateArn: !Ref 'ACMCertificate'
      MinimumProtocolVersion: TLSv1.2_2021
      SslSupportMethod: sni-only

CT.CLOUDFRONT.PR.7 rule specification

# ###############################################################################
##   Rule Specification   ##
# ###############################################################################
#
# Rule Identifier:
#  cloudfront_sni_enabled_check
#
# Description:
# This control checks whether your Amazon CloudFront distributions are configured to use SNI to serve HTTPS requests.
#
# Reports on:
#  AWS::CloudFront::Distribution
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
# Rule Parameters:
None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any CloudFront distribution resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'ViewerCertificate' is not present on the CloudFront distribution resource
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'ViewerCertificate' is present on the CloudFront distribution resource
# And: 'CloudFrontDefaultCertificate' is set to bool(true)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'ViewerCertificate' is present on the CloudFront distribution resource
# And: 'AcmCertificateArn' or 'IamCertificateId' are provided in the 'ViewerCertificate' configuration
# And: 'MinimumProtocolVersion' is provided in the 'ViewerCertificate' configuration with a protocol that does not support SNI (SSLv3)
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'ViewerCertificate' is present on the CloudFront distribution resource
# And: 'AcmCertificateArn' or 'IamCertificateId' are provided in the 'ViewerCertificate' configuration
# And: 'MinimumProtocolVersion' is provided in the 'ViewerCertificate' configuration with a protocol that supports SNI (TLSv1 or greater)
And: 'SslSupportMethod' is set to 'vip'
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CloudFront distribution resource
And: 'ViewerCertificate' is present on the CloudFront distribution resource
And: 'AcmCertificateArn' or 'IamCertificateId' are provided in the 'ViewerCertificate' configuration
And: 'MinimumProtocolVersion' is provided in the 'ViewerCertificate' configuration with a protocol that supports SNI (TLSv1 or greater)
And: 'SslSupportMethod' is set to 'sni-only'
Then: PASS

Constants

let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
let UNSUPPORTED_PROTOCOLS_FOR_SNI = [ "SSLv3" ]
let INPUT_DOCUMENT = this

Assignments

let cloudfront_distributions = Resources.[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]

Primary Rules

rule cloudfront_sni_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%cloudfront_distributions not empty {
  check(%cloudfront_distributions.Properties)
  [CT.CLOUDFRONT.PR.7]: Require an Amazon CloudFront distribution to use SNI to serve HTTPS requests
  [FIX]: Within 'ViewerCertificate', set 'SslSupportMethod' to 'sni-only', 'MinimumProtocolVersion' to a protocol that supports SNI ('TLSv1' or greater), and 'AcmCertificateArn' to the ARN of an AWS ACM certificate.
}
check(%INPUT_DOCUMENT.%CLOUDFRONT_DISTRIBUTION_TYPE.resourceProperties)
<<
[CT.CLOUDFRONT.PR.7]: Require an Amazon CloudFront distribution to use SNI to serve HTTPS requests

[FIX]: Within 'ViewerCertificate', set 'SslSupportMethod' to 'sni-only', 'MinimumProtocolVersion' to a protocol that supports SNI ('TLSv1' or greater), and 'AcmCertificateArn' to the ARN of an AWS ACM certificate.

>>

# Parameterized Rules
#

rule check(cloudfront_distribution) {
  %cloudfront_distribution {
    DistributionConfig exists
    DistributionConfig is_struct

    DistributionConfig {
      ViewerCertificate exists
      ViewerCertificate is_struct

      ViewerCertificate {
        CloudFrontDefaultCertificate not exists or
        CloudFrontDefaultCertificate == false

        check_custom_acm_certificate_provided(AcmCertificateArn,
        "AWS::CertificateManager::Certificate") or
        check_custom_iam_certificate_provided(IamCertificateId)

        MinimumProtocolVersion exists
        MinimumProtocolVersion not in %UNSUPPORTED_PROTOCOLS_FOR_SNI

        SslSupportMethod exists
        SslSupportMethod == "sni-only"
      }
    }
  }
}

rule check_custom_acm_certificate_provided(certificate, cfn_type) {
  %certificate {
    this exists
    check_is_string_and_not_empty(this) or
check_local_references(%INPUT_DOCUMENT, this, %cfn_type)
}
}

rule check_custom_iam_certificate_provided(certificate) {
  %certificate {
    this exists
    check_is_string_and_not_empty(this)
  }
}

#
# Utility Rules
#
rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /\A\s*\z/
  }
}

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
  %reference_properties {
    'Fn::GetAtt' {
      query_for_resource(%doc, this[0], %referenced_resource_type)
      <<Local Stack reference was invalid>>
    } or Ref {
      query_for_resource(%doc, this, %referenced_resource_type)
      <<Local Stack reference was invalid>>
    }
  }
}
CT.CLOUDFRONT.PR.7 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:
          Fn::Sub: ${AWS::StackName}-example-cache-policy
  ParametersInCacheKeyAndForwardedToOrigin:
    CookiesConfig:
      CookieBehavior: none
    EnableAcceptEncodingGzip: false
    HeadersConfig:
      HeaderBehavior: none
    QueryStringsConfig:
      QueryStringBehavior: none
  ACMCertificate:
    Type: "AWS::CertificateManager::Certificate"
    Properties:
      DomainName: example.com
      ValidationMethod: DNS
    DomainValidationOptions:
      - DomainName: www.example.com
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
CachePolicy:
  Type: AWS::CloudFront::CachePolicy
  Properties:
    CachePolicyConfig:
      DefaultTTL: 20
      MaxTTL: 20
      MinTTL: 19
      Name:
        Fn::Sub: ${AWS::StackName}-example-cache-policy
    ParametersInCacheKeyAndForwardedToOrigin:
      CookiesConfig:
        CookieBehavior: none
        EnableAcceptEncodingGzip: false
      HeadersConfig:

HeaderBehavior: none
QueryStringsConfig:
    queryStringBehavior: none
ACMCertificate:
    Type: "AWS::CertificateManager::Certificate"
    Properties:
        DomainName: example.com
        ValidationMethod: DNS
        DomainValidationOptions:
            - DomainName: www.example.com
              HostedZoneId: ZZZHHHHHWwWAAA
CloudFrontDistribution:
    Type: AWS::CloudFront::Distribution
    Properties:
        DistributionConfig:
            Enabled: false
            Origins:
                - Id: exampleOrigin
                  DomainName: example.com
                  CustomOriginConfig:
                      OriginProtocolPolicy: https-only
        DefaultCacheBehavior:
            ViewerProtocolPolicy: https-only
            TargetOriginId: exampleOrigin
            CachePolicyId:
                Ref: CachePolicy
        ViewerCertificate:
            AcmCertificateArn:
                Ref: ACMCertificate
            MinimumProtocolVersion: TLSv1
            SslSupportMethod: vip

[CT.CLOUDFRONT.PR.8] Require an Amazon CloudFront distribution to encrypt traffic to custom origins

This control checks whether your Amazon CloudFront distributions are encrypting traffic to custom origins.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation Guard Rule
Control behavior: Proactive

Resource types: AWS::CloudFront::Distribution

AWS CloudFormation guard rule: CT.CLOUDFRONT.PR.8 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.CLOUDFRONT.PR.8 rule specification
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.CLOUDFRONT.PR.8 example templates

Explanation

HTTPS (TLS) can help prevent eavesdropping or manipulation of network traffic. Only encrypted connections over HTTPS (TLS) should be allowed.

Usage considerations

- This control applies only to Amazon CloudFront distributions that have one or more origins configured.

Remediation for rule failure

For Amazon CloudFront custom origins, set OriginProtocolPolicy to https-only or match-viewer. When setting OriginProtocolPolicy to match-viewer, do not set ViewerProtocolPolicy to allow-all' for any cache behaviors.

The examples that follow show how to implement this remediation.

Amazon CloudFront Distribution - Example One

Amazon CloudFront distribution configured to require HTTPS connections to custom origins, by means of an origin protocol policy of https-only. The example is shown in JSON and in YAML.

JSON example
AWS Control Tower

YAML example

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
Properties:
   DistributionConfig:
      Enabled: false
   DefaultCacheBehavior:
      ViewerProtocolPolicy: https-only
      TargetOriginId: sampleOrigin
      CachePolicyId: !Ref 'CachePolicy'
   CacheBehaviors:
      - ViewerProtocolPolicy: https-only
         TargetOriginId: sampleOrigin
         PathPattern: '*'
         CachePolicyId: !Ref 'CachePolicy'
   Origins:
      - Id: sampleOrigin
         DomainName: example.com
         CustomOriginConfig:
            OriginProtocolPolicy: https-only

The examples that follow show how to implement this remediation.

Amazon CloudFront Distribution - Example Two

Amazon CloudFront distribution configured to require HTTPS connections to custom origins, by means of an origin protocol policy of match-viewer. The example is shown in JSON and in YAML.

JSON example

```json
{
   "CloudFrontDistribution": {
      "Type": "AWS::CloudFront::Distribution",
      "Properties": {
         "DistributionConfig": {
            "Enabled": false,
            "DefaultCacheBehavior": {
               "ViewerProtocolPolicy": "https-only",
               "TargetOriginId": "sampleOrigin",
               "CachePolicyId": {
                  "Ref": "CachePolicy"
               }
            }
         }
      }
   }
}
```
"CacheBehaviors": [
    {
        "ViewerProtocolPolicy": "https-only",
        "TargetOriginId": "sampleOrigin",
        "PathPattern": "*",
        "CachePolicyId": {
            "Ref": "CachePolicy"
        }
    }
],
"Origins": [
    {
        "Id": "sampleOrigin",
        "DomainName": "example.com",
        "CustomOriginConfig": {
            "OriginProtocolPolicy": "match-viewer"
        }
    }
]
}

YAML example

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
      DefaultCacheBehavior:
        ViewerProtocolPolicy: https-only
        TargetOriginId: sampleOrigin
        CachePolicyId: !Ref 'CachePolicy'
      CacheBehaviors:
        - ViewerProtocolPolicy: https-only
          TargetOriginId: sampleOrigin
          PathPattern: '*'
          CachePolicyId: !Ref 'CachePolicy'
    Origins:
- Id: sampleOrigin
  DomainName: example.com
  CustomOriginConfig:
    OriginProtocolPolicy: match-viewer

CT.CLOUDFRONT.PR.8 rule specification

# ###########################################################################
##     Rule Specification      ##
###########################################################################
#
# Rule Identifier:
#   cloudfront_traffic_to_origin_encrypted_check
#
# Description:
#   This control checks whether your Amazon CloudFront distributions are encrypting
#   traffic to custom origins.
#
# Reports on:
#   AWS::CloudFront::Distribution
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#            document
#     And: The input document does not contain any CloudFront distribution resources
#     Then: SKIPs
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#            document
#     And: The input document contains a CloudFront distribution resource
#     And: 'Origins' is not present or is an empty list
#     Then: SKIP
#   Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more 'Origins' has been configured
# And: There are no 'Origins' with a 'CustomOriginConfig'
# Then: SKIP
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'CustomOrigin' is present on the CloudFront distribution resource
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more 'Origins' has been configured
# And: At least one 'Origins' with a 'CustomOriginConfig' has an 'OriginProtocolPolicy' of 'http-only'
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more 'Origins' has been configured
# And: At least one 'Origins' with a 'CustomOriginConfig' has an 'OriginProtocolPolicy' of 'match-viewer'
# And: Any 'ViewerProtocolPolicy' is set to 'allow-all' for 'DefaultCacheBehavior' or any configured  
  'CacheBehaviors'
# Then: FAIL
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more 'Origins' has been configured
# And: All 'Origins' with a 'CustomOriginConfig' have an 'OriginProtocolPolicy' of 'https-only'
# Then: PASS
# Scenario: 8
# Constants
#
let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
let INPUT_DOCUMENT = this
#
# Assignments
#
let cloudfront_distributions = Resources.*[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]
#
# Primary Rules
#
rule cloudfront_traffic_to_origin_encrypted_check when is_cfn_template(%INPUT_DOCUMENT) {
  %cloudfront_distributions not empty {
    check(%cloudfront_distributions.Properties)
    <=
      [CT.CLOUDFRONT.PR.8]: Require an Amazon CloudFront distribution to encrypt traffic to custom origins
      
      [FIX]: For Amazon CloudFront custom origins, set 'OriginProtocolPolicy' to 'https-only' or match-viewer'. When setting 'OriginProtocolPolicy' to 'match-viewer', do not set 'ViewerProtocolPolicy' to 'allow-all' for any cache behaviors.
      
    }
  }

rule cloudfront_traffic_to_origin_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDFRONT_DISTRIBUTION_TYPE) {
  check(%INPUT_DOCUMENT.%CLOUDFRONT_DISTRIBUTION_TYPE.resourceProperties)
  <=

[CT.CLOUDFRONT.PR.8]: Require an Amazon CloudFront distribution to encrypt traffic to custom origins

[FIX]: For Amazon CloudFront custom origins, set 'OriginProtocolPolicy' to 'https-only' or 'match-viewer'. When setting 'OriginProtocolPolicy' to 'match-viewer', do not set 'ViewerProtocolPolicy' to 'allow-all' for any cache behaviors.

```
#
# Parameterized Rules
#
rule check(cloudfront_distribution) {
  %cloudfront_distribution[
    filter_cloudfront_distribution_with_legacy_origins(this)
  ] {
    DistributionConfig {
      # Scenario 4
      CustomOrigin not exists
    }
  }
}

%cloudfront_distribution [
  # Scenario 2
  filter_cloudfront_distribution_with_origins(this)
] {
  let cloudfront_distro = this

  DistributionConfig {
    Origins [
      # Scenario 3
      CustomOriginConfig exists
      CustomOriginConfig is_struct
    ] {
      CustomOriginConfig {
        # Scenario 5
        OriginProtocolPolicy != "http-only"
        # Scenario 6
        OriginProtocolPolicy == "https-only" or
        # Scenario 6 and 8
        match_viewer_policy_with_no_allow_all_viewer_protocol_policy(OriginProtocolPolicy, %cloudfront_distro)
      }
    }
  }
}
rule match_viewer_policy_with_no_allow_all_viewer_protocol_policy(origin_protocol_policy, cloudfront_distribution) {
  %origin_protocol_policy {
    this == "match-viewer"
  }
  %cloudfront_distribution {
    DistributionConfig {
      DefaultCacheBehavior exists
      DefaultCacheBehavior is_struct
      DefaultCacheBehavior {
        check_viewer_protocol_policy(this)
      }
      when CacheBehaviors exists
      CacheBehaviors is_list
      CacheBehaviors not empty {
        CacheBehaviors[*] {
          check_viewer_protocol_policy(this)
        }
      }
    }
  }
}

rule check_viewer_protocol_policy(cache_behaviour) {
  %cache_behaviour {
    ViewerProtocolPolicy exists
    ViewerProtocolPolicy != "allow-all"
  }
}

rule filter_cloudfront_distribution_with_origins(cloudfront_distribution) {
  %cloudfront_distribution {
    DistributionConfig exists
    DistributionConfig is_struct
    DistributionConfig {
      DefaultCacheBehavior exists
      DefaultCacheBehavior is_struct
      DefaultCacheBehavior {
        check_viewer_protocol_policy(this)
      }
      when CacheBehaviors exists
      CacheBehaviors is_list
      CacheBehaviors not empty {
        CacheBehaviors[*] {
          check_viewer_protocol_policy(this)
        }
      }
    }
  }
}
AWS Control Tower

CT.CLOUDFRONT.PR.8 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
CachePolicy:
  Type: AWS::CloudFront::CachePolicy
  Properties:
    CachePolicyConfig:
      DefaultTTL: 20
      MaxTTL: 20
      MinTTL: 19
      Name: 
        Fn::Sub: ${AWS::StackName}-example-cache-policy
  ParametersInCacheKeyAndForwardedToOrigin:
    CookiesConfig:
      CookieBehavior: none
      EnableAcceptEncodingGzip: false
    HeadersConfig:
      HeaderBehavior: none
    QueryStringsConfig:
      QueryStringBehavior: none

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
      DefaultCacheBehavior:
        ViewerProtocolPolicy: https-only
        TargetOriginId: exampleOrigin
      CachePolicyId:
        Ref: CachePolicy
    CacheBehaviors:
      - ViewerProtocolPolicy: https-only
        TargetOriginId: exampleOrigin
        PathPattern: '*'
        CachePolicyId:
          Ref: CachePolicy
    Origins:
      - Id: exampleOrigin
        DomainName: example.com
        CustomOriginConfig:
          OriginProtocolPolicy: https-only

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:
          Fn::Sub: ${AWS::StackName}-example-cache-policy
  ParametersInCacheKeyAndForwardedToOrigin:
    CookiesConfig:
      CookieBehavior: none
      EnableAcceptEncodingGzip: false
    HeadersConfig:
      HeaderBehavior: none
    QueryStringsConfig:
      QueryStringBehavior: none
  CloudFrontDistribution:
    Type: AWS::CloudFront::Distribution
    Properties:
      DistributionConfig:
        Enabled: false
        DefaultCacheBehavior:
          ViewerProtocolPolicy: allow-all
          TargetOriginId: exampleOrigin
        CachePolicyId:
          Ref: CachePolicy
      Origins:
        - Id: exampleOrigin
          DomainName: example.com
          CustomOriginConfig:
            OriginProtocolPolicy: match-viewer

[CT.CLOUDFRONT.PR.9] Require an Amazon CloudFront distribution to have a security policy of TLSv1.2 as a minimum

This control checks whether your Amazon CloudFront distributions are using a minimum security policy and cipher suite of TLSv1.2 or greater for viewer connections.
AWS Control Tower

- **Control objective:** Manage vulnerabilities
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CloudFront::Distribution
- **AWS CloudFormation guard rule:** [CT.CLOUDFRONT.PR.9 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDFRONT.PR.9 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDFRONT.PR.9 example templates](#)

**Explanation**

AWS Control Tower recommends that you use SSL/TLS to communicate with AWS resources. We recommend TLS version 1.2 or later.

You can specify the security policy CloudFront will use for HTTPS connections with viewers. The security policy determines two settings: 1) the minimum SSL/TLS protocol that CloudFront can use to communicate with viewers, and 2) the ciphers that CloudFront can use to encrypt the content that it returns to viewers.

**Usage considerations**

- This control requires a viewer certificate configuration compatible only with Amazon CloudFront distributions that use Aliases, also known as alternate domain names or CNAMEs.

**Remediation for rule failure**

Provide a ViewerCertificate configuration with MinimumProtocolVersion set to TLSv1.2 or higher.

The examples that follow show how to implement this remediation.
Amazon CloudFront Distribution - Example

Amazon CloudFront distribution configured to use TLS version 1.2 for viewer HTTPS connections. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "CloudFrontDistribution": {
    "Type": "AWS::CloudFront::Distribution",
    "Properties": {
      "DistributionConfig": {
        "Enabled": false,
        "Origins": [
          {
            "Id": "sampleOrigin",
            "DomainName": "example.com",
            "CustomOriginConfig": {
              "OriginProtocolPolicy": "https-only"
            }
          }
        ],
        "DefaultCacheBehavior": {
          "ViewerProtocolPolicy": "https-only",
          "TargetOriginId": "sampleOrigin",
          "CachePolicyId": {
            "Ref": "CachePolicy"
          }
        },
        "ViewerCertificate": {
          "MinimumProtocolVersion": "TLSv1.2_2018",
          "AcmCertificateArn": {
            "Ref": "ACMCertificate"
          },
          "SslSupportMethod": "vip"
        }
      }
    }
  }
}```
YAML example

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
      Origins:
        - Id: sampleOrigin
          DomainName: example.com
          CustomOriginConfig:
            OriginProtocolPolicy: https-only
    DefaultCacheBehavior:
      ViewerProtocolPolicy: https-only
      TargetOriginId: sampleOrigin
      CachePolicyId: !Ref 'CachePolicy'
      ViewerCertificate:
        MinimumProtocolVersion: TLSv1.2_2018
        AcmCertificateArn: !Ref 'ACMCertificate'
        SslSupportMethod: vip

CT.CLOUDFRONT.PR.9 rule specification

# #####################################################################
##       Rule Specification        ##
###################################################################

# Rule Identifier:
#     cloudfront_security_policy_check
#
# Description:
#     This control checks whether your Amazon CloudFront distributions are using a
#     minimum security policy and cipher suite of TLSv1.2 or greater for viewer connections.
#
# Reports on:
#     AWS::CloudFront::Distribution
#
# Evaluates:
#     AWS CloudFormation, AWS CloudFormation hook
# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document does not contain any CloudFront distribution resources
#   Then: SKIP
# Scenario: 2
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains a CloudFront distribution resource
#   And: 'DistributionConfig.ViewerCertificate' is not present on the CloudFront
distribution resource
#   Then: FAIL
# Scenario: 3
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains a CloudFront distribution resource
#   And: 'DistributionConfig.ViewerCertificate' is present on the CloudFront
distribution resource
#   And: 'CloudFrontDefaultCertificate' in 'ViewerCertificate' is set to bool(true)
#   Then: FAIL
# Scenario: 4
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains a CloudFront distribution resource
#   And: 'DistributionConfig.ViewerCertificate' is present on the CloudFront
distribution resource
#   And: 'CloudFrontDefaultCertificate' is not provided in 'ViewerCertificate' or
provided and set to bool(false)
#   And: 'MinimumProtocolVersion' is not provided in 'ViewerCertificate' or
provided as an empty string
#   Then: FAIL
# Scenario: 5
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains a CloudFront distribution resource
#   And: 'DistributionConfig.ViewerCertificate' is present on the CloudFront
distribution resource
#   And: 'CloudFrontDefaultCertificate' is not provided in 'ViewerCertificate' or
provided and set to bool(false)
And: 'MinimumProtocolVersion' is provided in 'ViewerCertificate' and is to one of SSLv3, TLSv1, TLSv1_2016, or TLSv1_1_2016
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CloudFront distribution resource
And: 'DistributionConfig.ViewerCertificate' is present on the CloudFront distribution resource
And: 'CloudFrontDefaultCertificate' is not provided in 'ViewerCertificate' or provided and set to bool(false)
And: 'MinimumProtocolVersion' is provided in 'ViewerCertificate' and is not set to SSLv3, TLSv1, TLSv1_2016, or TLSv1_1_2016
Then: PASS

# Constants
let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
let INPUT_DOCUMENT = this
let NON_COMPLIANT_TLS_POLICIES_LIST = ["SSLv3", "TLSv1", "TLSv1_2016", "TLSv1_1_2016"]

# Assignments
let cloudfront_distributions = Resources.*[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]

# Primary Rules
rule cloudfront_security_policy_check when is_cfn_template(%INPUT_DOCUMENT) %cloudfront_distributions not empty {
    check(%cloudfront_distributions.Properties)
    <=
    [CT.CLOUDFRONT.PR.9]: Require an Amazon CloudFront distribution to have a security policy of TLSv1.2 as a minimum
    [FIX]: Provide a 'ViewerCertificate' configuration with 'MinimumProtocolVersion' set to TLSv1.2 or higher.
>>
}
rule cloudfront_security_policy_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDFRONT_DISTRIBUTION_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDFRONT_DISTRIBUTION_TYPE.resourceProperties)
    <<
    [CT.CLOUDFRONT.PR.9]: Require an Amazon CloudFront distribution to have a security policy of TLSv1.2 as a minimum
    [FIX]: Provide a 'ViewerCertificate' configuration with 'MinimumProtocolVersion' set to TLSv1.2 or higher.
    >>
}

# # Parameterized Rules
#
rule check(cloudfront_distribution) {
   %cloudfront_distribution {
      DistributionConfig exists
      DistributionConfig is_struct

      DistributionConfig {
         # Scenario 2
         ViewerCertificate exists
         ViewerCertificate is_struct

         ViewerCertificate {
            # Scenario 3
            CloudFrontDefaultCertificate not exists or
            CloudFrontDefaultCertificate == false

            # Scenario 4, 5 and 6
            MinimumProtocolVersion exists

            check_is_string_and_not_empty(MinimumProtocolVersion)
            MinimumProtocolVersion not in %NON_COMPLIANT_TLS_POLICIES_LIST
         }
      }
   }
}

# # Utility Rules
#
rule check_is_string_and_not_empty(value) {
   %value {

CT.CLOUDFRONT.PR.9 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:
          Fn::Sub: ${AWS::StackName}-example-cache-policy
    ParametersInCacheKeyAndForwardedToOrigin:
      CookiesConfig:
        CookieBehavior: none
        EnableAcceptEncodingGzip: false
      HeadersConfig:
        HeaderBehavior: none
      QueryStringsConfig:
```

Proactive controls
AWS Control Tower

QueryStringBehavior: none

ACMCertificate:
  Type: "AWS::CertificateManager::Certificate"
  Properties:
    DomainName: example.com
    ValidationMethod: DNS
    DomainValidationOptions:
      - DomainName: www.example.com
        HostedZoneId: ZZZHHHHHWWWAAA

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
      Origins:
        - Id: exampleOrigin
          DomainName: example.com
          CustomOriginConfig:
            OriginProtocolPolicy: https-only
      DefaultCacheBehavior:
        ViewerProtocolPolicy: https-only
        TargetOriginId: exampleOrigin
        CachePolicyId:
          Ref: CachePolicy
      ViewerCertificate:
        MinimumProtocolVersion: TLSv1.2_2018
        AcmCertificateArn:
          Ref: ACMCertificate
        SslSupportMethod: sni-only

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
MinTTL: 19
Name: Fn::Sub: ${AWS::StackName}-example-cache-policy
ParametersInCacheKeyAndForwardedToOrigin:
  CookiesConfig:
    CookieBehavior: none
  EnableAcceptEncodingGzip: false
  HeadersConfig:
    HeaderBehavior: none
  QueryStringsConfig:
    QueryStringBehavior: none
ACMCertificate:
  Type: "AWS::CertificateManager::Certificate"
  Properties:
    DomainName: example.com
    ValidationMethod: DNS
    DomainValidationOptions:
      - DomainName: www.example.com
    HostedZoneId: ZZZHHHHHHWWWWAAA
CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
    Origins:
      - Id: exampleOrigin
        DomainName: example.com
        CustomOriginConfig:
          OriginProtocolPolicy: https-only
    DefaultCacheBehavior:
      ViewerProtocolPolicy: https-only
      TargetOriginId: exampleOrigin
      CachePolicyId:
        Ref: CachePolicy
    ViewerCertificate:
      MinimumProtocolVersion: TLSv1
      AcmCertificateArn:
        Ref: ACMCertificate
      SslSupportMethod: vip
[CT.CLOUDFRONT.PR.10] Require any Amazon CloudFront distributions with Amazon S3 backed origins to have origin access control configured

This control checks whether your Amazon CloudFront distributions backed by Amazon S3 are configured to use an origin access control.

- **Control objective:** Enforce least privilege, Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CloudFront::Distribution
- **AWS CloudFormation guard rule:** [CT.CLOUDFRONT.PR.10 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDFRONT.PR.10 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDFRONT.PR.10 example templates](#)

**Explanation**

CloudFront OAC prevents users from gaining direct access to an Amazon S3 bucket's content. Direct access an S3 bucket bypasses the CloudFront distribution and any permissions that are applied to the underlying S3 bucket content.

**Usage considerations**

- This control applies only to Amazon CloudFront distributions that have one or more origins backed by Amazon S3 configured.

**Remediation for rule failure**

The `Origins` property configures origins backed by Amazon S3. For each origin backed by Amazon S3, configure an origin access control identifier using the `OriginAccessControlId` property.

The examples that follow show how to implement this remediation.
Amazon CloudFront Distribution - Example

Amazon CloudFront distribution with an Amazon S3 bucket origin, configured with an origin access control. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "CloudFrontDistribution": {
        "Type": "AWS::CloudFront::Distribution",
        "Properties": {
            "DistributionConfig": {
                "Enabled": false,
                "Origins": [
                    {
                        "Id": "sampleOrigin",
                        "DomainName": {
                            "Fn::GetAtt": [
                                "OriginBucket",
                                "RegionalDomainName"
                            ]
                        },
                        "OriginAccessControlId": {
                            "Ref": "OriginAccessControl"
                        },
                        "S3OriginConfig": {}
                    }
                ],
                "DefaultCacheBehavior": {
                    "ViewerProtocolPolicy": "https-only",
                    "TargetOriginId": "sampleOrigin",
                    "CachePolicyId": {
                        "Ref": "CachePolicy"
                    }
                }
            }
        }
    }
}
```

**YAML example**

```
Proactive controls
```
CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
    Origins:
      - Id: sampleOrigin
        DomainName: !GetAtt 'OriginBucket.RegionalDomainName'
        OriginAccessControlId: !Ref 'OriginAccessControl'
        S3OriginConfig: {}
    DefaultCacheBehavior:
      ViewerProtocolPolicy: https-only
      TargetOriginId: sampleOrigin
      CachePolicyId: !Ref 'CachePolicy'

CT.CLOUDFRONT.PR.10 rule specification

# #################################################################################################################
##         Rule Specification         ##
######################################################################################################################
#
# Rule Identifier:
#   cloudfront_origin_access_control_enabled_check
#
# Description:
#   This control checks whether your Amazon CloudFront distributions backed by Amazon S3 are configured to use an origin access control.
#
# Reports on:
#   AWS::CloudFront::Distribution
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any CloudFront distribution resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: No S3 backed 'Origins' are provided on the CloudFront distribution resource or 'Origins' is not present on
# the CloudFront distribution resource or is present and an empty list
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'S3Origin' is present on the CloudFront distribution resource
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more S3 backed 'Origins' are configured on the CloudFront distribution resource
# And: 'OriginAccessControlId' is not present for the 'Origin' or is an empty string or invalid local reference
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more S3 backed 'Origins' are provided on the CloudFront distribution resource
# And: 'OriginAccessControlId' is present for each S3 backed 'Origin' and is a non-empty string or valid local reference
# Then: PASS
#
#
# Constants
#
let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
let CLOUDFRONT_ORIGIN_ACCESS_CONTROL_TYPE = "AWS::CloudFront::OriginAccessControl"
let S3_BUCKET_DNS_NAME_PATTERN = /(.*)\.s3(-external-d|[-\.][a-z]*-[a-z]*-[0-9])?\.amazonaws.com(\.|cn)?$/
let INPUT_DOCUMENT = this

# # Assignments
#
let cloudfront_distributions = Resources.*[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]

# # Primary Rules
#
rule cloudfront_origin_access_control_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
    %cloudfront_distributions not empty {
        check(%cloudfront_distributions.Properties)
        <<
        [CT.CLOUDFRONT.PR.10]: Require any Amazon CloudFront distributions with Amazon S3 backed origins to have origin access control configured
        [FIX]: The 'Origins' property configures origins backed by Amazon S3. For each origin backed by Amazon S3, configure an origin access control identifier using the 'OriginAccessControlId' property.
        >>
    }

rule cloudfront_origin_access_control_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDFRONT_DISTRIBUTION_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDFRONT_DISTRIBUTION_TYPE.resourceProperties)
    <<
    [CT.CLOUDFRONT.PR.10]: Require any Amazon CloudFront distributions with Amazon S3 backed origins to have origin access control configured
    [FIX]: The 'Origins' property configures origins backed by Amazon S3. For each origin backed by Amazon S3, configure an origin access control identifier using the 'OriginAccessControlId' property.
    >>
}

# # Parameterized Rules
#
rule check(cloudfront_distribution) {
    %cloudfront_distribution[
        filter_cloudfront_distribution_with_legacy_s3_origins(this)
    ]
}

Proactive controls
%cloudfront_distribution[{
    DistributionConfig{
        # Scenario 3
        S3Origin not exists
    }
}
]

%cloudfront_distribution[
    # Scenario 2
    filter_cloudfront_distribution_with_origins(this)
]
{
    DistributionConfig{
        Origins[
            # Scenario 4
            DomainName == %S3_BUCKET_DNS_NAME_PATTERN or
            check_origin_domain_name_get_att(DomainName)
        ]
        # Scenario 3 and 5
        OriginAccessControlId exists
        check_is_string_and_not_empty(OriginAccessControlId) or
        check_local_references(%INPUT_DOCUMENT, OriginAccessControlId, %CLOUDFRONT_ORIGIN_ACCESS_CONTROL_TYPE)
    }
}

rule filter_cloudfront_distribution_with_legacy_s3_origins(cloudfront_distribution) {
    %cloudfront_distribution{
        DistributionConfig exists
        DistributionConfig is_struct

        DistributionConfig{
            S3Origin exists
        }
    }
}

rule filter_cloudfront_distribution_with_origins(cloudfront_distribution) {
    %cloudfront_distribution{
        DistributionConfig exists
        DistributionConfig is_struct

        DistributionConfig{
            # Scenario 3
            S3Origin not exists
        }
    }
}
Origins exists
Origins is_list
Origins not empty
}
}
}
}
}

rule check_origin_domain_name_get_att(domain) {
%domain {
 'Fn::GetAtt' {
 this is_list
 this not empty
 this[1] == "DomainName" or
 this[1] == "RegionalDomainName"
 }
 check_local_references(%INPUT_DOCUMENT, this, "AWS::S3::Bucket")
}
}

# Utility Rules
#
rule check_is_string_and_not_empty(value) {
%value {
 this is_string
 this != /\A\s*\z/ 
 }
}

rule is_cfn_template(doc) {
%doc {
 AWSTemplateFormatVersion exists or
 Resources exists
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
%doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
%reference_properties {
 'Fn::GetAtt' {
 query_for_resource(%doc, this[0], %referenced_resource_type)
CT.CLOUDFRONT.PR.10 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:
          Fn::Sub: ${AWS::StackName}-example-cache-policy
  ParametersInCacheKeyAndForwardedToOrigin:
    CookiesConfig:
      CookieBehavior: none
    EnableAcceptEncodingGzip: false
    HeadersConfig:
      HeaderBehavior: none
    QueryStringsConfig:
      QueryStringBehavior: none
OriginAccessControl:
  Type: AWS::CloudFront::OriginAccessControl
  Properties:
    OriginAccessControlConfig:
      Name:
        Fn::Sub: ${AWS::StackName}-example-oac
      OriginAccessControlOriginType: s3
      SigningBehavior: always
      SigningProtocol: sigv4

OriginBucket:
  Type: AWS::S3::Bucket

OriginBucketPolicy:
  Type: AWS::S3::BucketPolicy
  Properties:
    Bucket:
      Ref: OriginBucket
    PolicyDocument:
      Version: 2012-10-17
      Statement:
        - Action:
          - 's3:GetObject'
        Effect: Allow
        Resource:
          Fn::Join:
          - ''
          - - 'arn:aws:s3:::'
          - Ref: OriginBucket
          - /*
        Principal:
          Service: cloudfront.amazonaws.com
        Condition:
          StringEquals:
            "AWS:SourceArn":
              Fn::Join:
              - ''
              - - 'arn:aws:s3:::'
              - Ref: AWS::AccountId
              - ':distribution/'
              - Ref: CloudFrontDistribution

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
Origins:
- Id: exampleOrigin
  DomainName:
    Fn::GetAtt:
  - OriginBucket
  - RegionalDomainName
OriginAccessControlId:
  Ref: OriginAccessControl
S3OriginConfig: {}
DefaultCacheBehavior:
  ViewerProtocolPolicy: https-only
TargetOriginId: exampleOrigin
CachePolicyId:
  Ref: CachePolicy

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
CachePolicy:
  Type: AWS::CloudFront::CachePolicy
Properties:
  CachePolicyConfig:
    DefaultTTL: 20
    MaxTTL: 20
    MinTTL: 19
  Name:
    Fn::Sub: ${AWS::StackName}-example-cache-policy
ParametersInCacheKeyAndForwardedToOrigin:
  CookiesConfig:
    CookieBehavior: none
  EnableAcceptEncodingGzip: false
HeadersConfig:
  HeaderBehavior: none
QueryStringsConfig:
  QueryStringBehavior: none
OriginBucketOai:
  Type: AWS::CloudFront::CloudFrontOriginAccessIdentity
Properties:
  CloudFrontOriginAccessIdentityConfig:
Comment:
   Fn::Sub: ${AWS::StackName}-example-oai

OriginBucket:
  Type: AWS::S3::Bucket

OriginBucketPolicy:
  Type: AWS::S3::BucketPolicy

Properties:
  Bucket:
    Ref: OriginBucket
  PolicyDocument:
    Version: 2012-10-17
    Statement:
      - Action:
        - 's3:GetObject'
      Effect: Allow
      Resource:
        Fn::Join:
          - ''
          - - 'arn:aws:s3:::'
          - Ref: OriginBucket
          - /*
      Principal:
        AWS:
          Fn::Join:
            - ''
            - - 'arn:aws:iam::cloudfront:user/CloudFront Origin Access Identity'
            - Ref: OriginBucketOai

CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution

Properties:
  DistributionConfig:
    Enabled: false
  Origins:
    - Id: exampleS3Origin
      DomainName:
        Fn::GetAtt:
          - OriginBucket
          - RegionalDomainName
  S3OriginConfig:
    OriginAccessIdentity:
      Fn::Sub: "origin-access-identity/cloudfront/${OriginBucketOai}"
  DefaultCacheBehavior:
    ViewerProtocolPolicy: https-only
    TargetOriginId: exampleS3Origin
[CT.CLOUDFRONT.PR.11] Require an Amazon CloudFront distribution to use updated SSL protocols between edge locations and custom origins

This control checks whether your Amazon CloudFront distributions are using deprecated SSL protocols for HTTPS communication between CloudFront edge locations and custom origins.

- **Control objective**: Manage vulnerabilities
- **Implementation**: AWS CloudFormation Guard Rule
- **Control behavior**: Proactive
- **Resource types**: AWS::CloudFront::Distribution
- **AWS CloudFormation guard rule**: [CT.CLOUDFRONT.PR.11 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDFRONT.PR.11 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDFRONT.PR.11 example templates](#)

**Explanation**

In 2015, the Internet Engineering Task Force (IETF) officially announced that SSL 3.0 should be deprecated, because the protocol is insufficiently secure. We recommend that you use TLSv1.2 or later for HTTPS communication to your custom origins.

**Usage considerations**

- This control applies only to Amazon CloudFront distributions that have one or more custom origins configured.
Remediation for rule failure

Remove deprecated SSL protocols from OriginSSLProtocols in Origins that have CustomOriginConfig configurations.

The examples that follow show how to implement this remediation.

Amazon CloudFront Distribution - Example

Amazon CloudFront distribution configured to use TLS v1.2 as an origin SSL protocol. The example is shown in JSON and in YAML.

JSON example

```json
{
  "CloudFrontDistribution": {
    "Type": "AWS::CloudFront::Distribution",
    "Properties": {
      "DistributionConfig": {
        "Enabled": false,
        "DefaultCacheBehavior": {
          "ViewerProtocolPolicy": "https-only",
          "TargetOriginId": "sampleOrigin",
          "CachePolicyId": {
            "Ref": "CachePolicy"
          }
        },
        "Origins": [
          {
            "Id": "sampleOrigin",
            "DomainName": "example.com",
            "CustomOriginConfig": {
              "OriginProtocolPolicy": "https-only",
              "OriginSSLProtocols": [
                "TLSv1.2"
              ]
            }
          }
        ]
      }
    }
  }
}
```
YAML example

```yaml
CloudFrontDistribution:
  Type: AWS::CloudFront::Distribution
  Properties:
    DistributionConfig:
      Enabled: false
      DefaultCacheBehavior:
        ViewerProtocolPolicy: https-only
        TargetOriginId: sampleOrigin
        CachePolicyId: !Ref 'CachePolicy'
    Origins:
      - Id: sampleOrigin
        DomainName: example.com
        CustomOriginConfig:
          OriginProtocolPolicy: https-only
          OriginSslProtocols:
            - TLSv1.2
```

CT.CLOUDFRONT.PR.11 rule specification

```
# #############################################################################
##             Rule Specification             ##
# #############################################################################

# Rule Identifier:
#   cloudfront_no_deprecated_ssl_protocols_check
#
# Description:
#   This control checks whether your Amazon CloudFront distributions are using deprecated SSL protocols for HTTPS communication between CloudFront edge locations and custom origins.
#
# Reports on:
#   AWS::CloudFront::Distribution
#
# Evaluates:
```
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any CloudFront distribution resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'Origins' is not present or is an empty list
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more 'Origins' has been configured
# And: There are no 'Origins' with a 'CustomOriginConfig'
# Then: SKIP
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more 'Origins' has been configured
# And: There one or more 'Origins' with a 'CustomOriginConfig'
# And: All 'Origins' with a 'CustomOriginConfig' have an 'OriginProtocolPolicy' of 'http-only'
# Then: SKIP
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: 'CustomOrigin' is present on the CloudFront distribution resource
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more 'Origins' has been configured
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more 'Origins' has been configured
# And: There one or more 'Origins' with a 'CustomOriginConfig'
# And: One or more 'Origins' with a 'CustomOriginConfig' have an 'OriginProtocolPolicy' not equal to 'http-only'
# And: 'OriginSSLProtocols' has not been specified or specified as an empty list
# Then: FAIL

# Scenario: 8
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudFront distribution resource
# And: One or more 'Origins' has been configured
# And: There one or more 'Origins' with a 'CustomOriginConfig'
# And: One or more 'Origins' with a 'CustomOriginConfig' have an 'OriginProtocolPolicy' not equal to 'http-only'
# And: 'OriginSSLProtocols' has been specified as a non-empty list and contains 'SSLv3'
# Then: FAIL

# Constants
let CLOUDFRONT_DISTRIBUTION_TYPE = "AWS::CloudFront::Distribution"
let UNSUPPORTED_ORIGIN_SSL_PROTOCOLS = [ "SSLv3" ]
let OUT_OF_SCOPE_PROTOCOL_POLICIES = [ "http-only" ]
let INPUT_DOCUMENT = this

# Assignments
let cloudfront_distributions = Resources.*[ Type == %CLOUDFRONT_DISTRIBUTION_TYPE ]
rule cloudfront_no_deprecated_ssl_protocols_check when is_cfn_template(%INPUT_DOCUMENT)
  %cloudfront_distributions not empty {
    check(%cloudfront_distributions.Properties)
    <<
    [CT.CLOUDFRONT.PR.11]: Require an Amazon CloudFront distribution to use updated SSL protocols between edge locations and custom origins
    [FIX]: Remove deprecated SSL protocols from 'OriginSSLProtocols' in 'Origins' that have 'CustomOriginConfig' configurations.
    >>
  }

rule cloudfront_no_deprecated_ssl_protocols_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDFRONT_DISTRIBUTION_TYPE) {
  check(%INPUT_DOCUMENT.%CLOUDFRONT_DISTRIBUTION_TYPE.resourceProperties)
  <<
  [CT.CLOUDFRONT.PR.11]: Require an Amazon CloudFront distribution to use updated SSL protocols between edge locations and custom origins
  [FIX]: Remove deprecated SSL protocols from 'OriginSSLProtocols' in 'Origins' that have 'CustomOriginConfig' configurations.
  >>
}

# # Parameterized Rules #
rule check(cloudfront_distribution) {
  %cloudfront_distribution[
    filter_cloudfront_distribution_with_legacy_origins(this)
  ] {
    DistributionConfig {
      # Scenario 5
      CustomOrigin not exists
    }
  }

  %cloudfront_distribution[
    # Scenario 2
    filter_cloudfront_distribution_with_origins(this)
  ] {
    DistributionConfig {
      Origins [
        # Scenario 3 and 4
        CustomOriginConfig exists
      ]
    }
  }
}
rule filter_cloudfront_distribution_with_origins(cloudfront_distribution) {
  %cloudfront_distribution {
    DistributionConfig exists
    DistributionConfig is_struct

    DistributionConfig {
      Origins exists
      Origins is_list
      Origins not empty
    }
  }
}

rule filter_cloudfront_distribution_with_legacy_origins(cloudfront_distribution) {
  %cloudfront_distribution {
    DistributionConfig exists
    DistributionConfig is_struct

    DistributionConfig {
      CustomOrigin exists
    }
  }
}

rule filter_custom_origin_config(custom_origin_config) {
  %custom_origin_config {
    OriginProtocolPolicy exists
    OriginProtocolPolicy not in %OUT_OF_SCOPE_PROTOCOL_POLICIES
  }
}
CT.CLOUDFRONT.PR.11 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  CachePolicy:
    Type: AWS::CloudFront::CachePolicy
    Properties:
      CachePolicyConfig:
        DefaultTTL: 20
        MaxTTL: 20
        MinTTL: 19
        Name:
          Fn::Sub: ${AWS::StackName}-example-cache-policy
  ParametersInCacheKeyAndForwardedToOrigin:
    CookiesConfig:
      CookieBehavior: none
      EnableAcceptEncodingGzip: false
    HeadersConfig:
      HeaderBehavior: none
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
CachePolicy:
  Type: AWS::CloudFront::CachePolicy
  Properties:
    CachePolicyConfig:
      DefaultTTL: 20
      MaxTTL: 20
      MinTTL: 19
      Name:
        Fn::Sub: ${AWS::StackName}-example-cache-policy
ParametersInCacheKeyAndForwardedToOrigin:
  CookiesConfig:
    CookieBehavior: none
    EnableAcceptEncodingGzip: false
  HeadersConfig:
    HeaderBehavior: none
  QueryStringsConfig:
AWS CloudTrail controls

Topics

- **[CT.CLOUDTRAIL.PR.1]** Require an AWS CloudTrail trail to have encryption at rest activated
- **[CT.CLOUDTRAIL.PR.2]** Require an AWS CloudTrail trail to have log file validation activated
- **[CT.CLOUDTRAIL.PR.3]** Require an AWS CloudTrail trail to have an Amazon CloudWatch Logs log group configuration
- **[CT.CLOUDTRAIL.PR.4]** Require an AWS CloudTrail Lake event data store to enable encryption at rest with an AWS KMS key

[CT.CLOUDTRAIL.PR.1] Require an AWS CloudTrail trail to have encryption at rest activated

This control checks whether your AWS CloudTrail is configured to use the server-side encryption (SSE) AWS KMS key encryption.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
Resource types: AWS::CloudTrail::Trail

AWS CloudFormation guard rule: CT.CLOUDTRAIL.PR.1 rule specification

Details and examples

For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.CLOUDTRAIL.PR.1 rule specification

For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.CLOUDTRAIL.PR.1 example templates

Explanation

For an added layer of security for your sensitive CloudTrail log files, you should use server-side encryption with AWS KMS keys (SSE-KMS) for your CloudTrail log files for encryption at rest. Note that by default, the log files delivered by CloudTrail to your buckets are encrypted by Amazon server-side encryption with Amazon S3-managed encryption keys (SSE-S3).

Remediation for rule failure

Set the KMSKeyId property to a valid KMS key.

The examples that follow show how to implement this remediation.

AWS CloudTrail trail - Example

AWS CloudTrail Trail configured to use server-side encryption with AWS KMS keys (SSE-KMS). The example is shown in JSON and in YAML.

JSON example

```json
{
   "CloudTrail": {
      "Type": "AWS::CloudTrail::Trail",
      "Properties": {
         "IsLogging": true,
         "KMSKeyId": {
            "Ref": "KMSKey"
         },
         "S3BucketName": {
            "Ref": "LoggingBucket"
         }
      }
   }
}
```
YAML example

```yaml
CloudTrail:
    Type: AWS::CloudTrail::Trail
    Properties:
        IsLogging: true
        KMSKeyId: !Ref 'KMSKey'
        S3BucketName: !Ref 'LoggingBucket'
```

CT.CLOUDTRAIL.PR.1 rule specification

```yaml
# ***************************************************************
##   Rule Specification   ##
# ***************************************************************
#
# Rule Identifier:
#   cloud_trail_encryption_enabled_check
#
# Description:
#   This rule checks whether AWS CloudTrail is configured to use the server-side
#   encryption (SSE) AWS KMS key encryption.
#
# Reports on:
#   AWS::CloudTrail::Trail
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
```
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document does not contain any AWS CloudTrail trails
Then: SKIP

Scenario: 2
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains a CloudTrail trail resource
And: 'KMSKeyId' is not present
Then: FAIL

Scenario: 3
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains a CloudTrail trail resource
And: 'KMSKeyId' has been provided and is set to an empty string or a non-valid local reference to a KMS key or Alias
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains a CloudTrail trail resource
And: 'KMSKeyId' has been provided and is a non-empty string or a valid reference to a KMS key or Alias.
Then: PASS

# Constants
let CLOUDTRAIL_TRAIL_TYPE = "AWS::CloudTrail::Trail"
let INPUT_DOCUMENT = this

# Assignments
let cloudtrail_trails = Resources.*[ Type == %CLOUDTRAIL_TRAIL_TYPE ]

# Primary Rules
rule cloud_trail_encryption_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%cloudtrail_trails not empty { check_cloudtrail_kms_key_configuration(%cloudtrail_trails.Properties) }
[CT.CLOUDTRAIL.PR.1]: Require an AWS CloudTrail trail to have encryption at rest activated

[FIX]: Set the 'KMSKeyId' property to a valid KMS key.

} >>

rule cloud_trail_encryption_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDTRAIL_TRAIL_TYPE) {
  check_cloudtrail_kms_key_configuration(%INPUT_DOCUMENT, %CLOUDTRAIL_TRAIL_TYPE.resourceProperties)
  <<
  [CT.CLOUDTRAIL.PR.1]: Require an AWS CloudTrail trail to have encryption at rest activated
  [FIX]: Set the 'KMSKeyId' property to a valid KMS key.
  >>
}

# # Parameterized Rules #
#
rule check_cloudtrail_kms_key_configuration(cloudtrail_trail){
  %cloudtrail_trail {
    # Scenario 2
    KMSKeyId exists
    # Scenario 3 and 4
    check_is_string_and_not_empty(KMSKeyId) or
    check_kms_key_id_local_ref(KMSKeyId)
  }
}

rule check_kms_key_id_local_ref(key_ref) {
  %key_ref {
    check_local_references(%INPUT_DOCUMENT, this, "AWS::KMS::Key") or
    check_local_references(%INPUT_DOCUMENT, this, "AWS::KMS::Alias")
  }
}

# # Utility Rules #
#
rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /\A\s*\z/
  }
}
CT.CLOUDTRAIL.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
Resources:
  KMSKey:
    Type: AWS::KMS::Key
    Properties:
      KeyPolicy:
        Version: 2012-10-17
        Id: example-cloudtrail-key-policy
        Statement:
          - Sid: Enable IAM User Permissions
            Effect: Allow
            Principal:
              AWS:
                Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
            Action: kms:*
            Resource: '*'
          - Sid: Allow CloudTrail to encrypt logs
            Effect: Allow
            Action: "kms:GenerateDataKey*"
            Principal:
              Service: "cloudtrail.amazonaws.com"
            Resource: '*'
            Condition:
              StringLike:
                "kms:EncryptionContext:aws:cloudtrail:arn": [
                  Fn::Sub: "arn:aws:cloudtrail:*:${AWS::AccountId}:trail/*"
                ]
              StringEquals:
                "aws:SourceArn":
                Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/
                ${AWS::StackName}-example-trail"
            - Sid: Allow CloudTrail to describe key
              Effect: Allow
              Principal:
                Service: "cloudtrail.amazonaws.com"
              Action: kms:DescribeKey
              Resource: '*'
            - Sid: Allow principals in the account to decrypt log files
              Effect: Allow
              Principal:
                AWS: "*"
              Action:
                - "kms:Decrypt"
                - "kms:ReEncryptFrom"
              Resource: "*"
Condition:
  StringEquals:
  "kms:CallerAccount":
    Ref: AWS::AccountId
  "kms:EncryptionContext:aws:cloudtrail:arn":
    Fn::Sub: "arn:aws:cloudtrail::*:${AWS::AccountId}:trail/*"

LoggingBucket:
  Type: AWS::S3::Bucket
LoggingBucketPolicy:
  Type: AWS::S3::BucketPolicy
Properties:
  Bucket:
    Ref: LoggingBucket
  PolicyDocument:
    Version: 2012-10-17
    Statement:
      - Action:
        - 's3:GetBucketAcl'
        Effect: Allow
        Resource:
          Fn::Join:
            - '
              - 'arn:aws:s3:::
              - Ref: LoggingBucket
        Principal:
          Service: "cloudtrail.amazonaws.com"
        Condition:
          StringEquals:
            "aws:SourceArn":
            Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/${AWS::StackName}-example-trail"
          - Action:
            - 's3:PutObject'
            Effect: Allow
            Resource:
              Fn::Join:
                - '
                  - 'arn:aws:s3:::
                  - Ref: LoggingBucket
                  - /AWSLogs/
                  - Ref: AWS::AccountId
                  - /*
              Principal:
              Service: "cloudtrail.amazonaws.com"
Condition:
  StringEquals:
    's3:x-amz-acl': 'bucket-owner-full-control'
    "aws:SourceArn":
        Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/${AWS::StackName}-example-trail"

CloudTrail:
  Type: AWS::CloudTrail::Trail
  Properties:
    IsLogging: true
    TrailName:
        Fn::Sub: ${AWS::StackName}-example-trail
    KMSKeyId:
        Ref: KMSKey
    S3BucketName:
        Ref: LoggingBucket

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  LoggingBucket:
    Type: AWS::S3::Bucket
  LoggingBucketPolicy:
    Type: AWS::S3::BucketPolicy
    Properties:
      Bucket:
        Ref: LoggingBucket
      PolicyDocument:
        Version: 2012-10-17
        Statement:
          - Action:
            - 's3:GetBucketAcl'
          Effect: Allow
          Resource:
            Fn::Join:
              - '
              - - 'arn:aws:s3:::'
            - Ref: LoggingBucket
      Principal:...
Service: "cloudtrail.amazonaws.com"
Condition:
  StringEquals:
    "aws:SourceArn":
      Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/
${AWS::StackName}-example-trail"
  - Action:
    - 's3:PutObject'
Effect: Allow
Resource:
  Fn::Join:
    - ''
      - - 'arn:aws:s3:::
          - Ref: LoggingBucket
          - /AWSLogs/
          - Ref: AWS::AccountId
          - /*
Principal:
  Service: "cloudtrail.amazonaws.com"
Condition:
  StringEquals:
    's3:x-amz-acl': 'bucket-owner-full-control'
    "aws:SourceArn":
      Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/
${AWS::StackName}-example-trail"
CloudTrail:
  Type: AWS::CloudTrail::Trail
Properties:
  IsLogging: true
  TrailName:
    Fn::Sub: ${AWS::StackName}-example-trail
  S3BucketName:
    Ref: LoggingBucket

[CT.CLOUDTRAIL.PR.2] Require an AWS CloudTrail trail to have log file validation activated

This control checks whether log file integrity validation is enabled on an AWS CloudTrail trail.

- **Control objective:** Manage secrets
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
• **Resource types:** AWS::CloudTrail::Trail

• **AWS CloudFormation guard rule:** [CT.CLOUDTRAIL.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDTRAIL.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDTRAIL.PR.2 example templates](#)

**Explanation**

CloudTrail log file validation creates a digitally-signed digest file that contains a hash of each log that CloudTrail writes to Amazon S3. You can use these digest files to determine whether a log file was changed, deleted, or unchanged after CloudTrail delivered the log.

AWS Control Tower recommends that you enable file validation on all trails. Log file validation provides additional integrity checks of CloudTrail logs.

**Remediation for rule failure**

Set the CloudTrail resource `EnableLogFileValidation` property to true.

The examples that follow show how to implement this remediation.

**AWS CloudTrail trail - Example**

AWS CloudTrail trail configured with log file validation. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "CloudTrail": {
      "Type": "AWS::CloudTrail::Trail",
      "Properties": {
         "IsLogging": true,
         "S3BucketName": {
            "Ref": "LoggingBucket"
         }
      }
   }
}
```
"KMSKeyId": {
    "Ref": "KMSKey"
},
"EnableLogFileValidation": true
}
}
}

YAML example

CloudTrail:
  Type: AWS::CloudTrail::Trail
Properties:
  IsLogging: true
  S3BucketName: !Ref 'LoggingBucket'
  KMSKeyId: !Ref 'KMSKey'
  EnableLogFileValidation: true

CT.CLOUDTRAIL.PR.2 rule specification

# ###################################################################
##       Rule Specification        ##
# # Rule Identifier:
# cloud_trail_log_file_validation_enabled_check
# # Description:
# This control checks whether log file integrity validation is enabled on an AWS
# CloudTrail trail.
# # Reports on:
# AWS::CloudTrail::Trail
# # Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
# # Rule Parameters:
# None

# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document does not contain any CloudTrail trails
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains a CloudTrail trail resource
#     And: 'EnableLogFileValidation' is not present
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains a CloudTrail trail resource
#     And: 'EnableLogFileValidation' is present and is set to a value other than bool(true)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains a CloudTrail trail resource
#     And: 'EnableLogFileValidation' is present and set to bool(true)
#     Then: PASS

# Constants
#
let CLOUDTRAIL_TRAIL_TYPE = "AWS::CloudTrail::Trail"
let INPUT_DOCUMENT = this

# Assignments
#
let cloudtrail_trails = Resources.*[ Type == %CLOUDTRAIL_TRAIL_TYPE ]

# Primary Rules
# rule cloud_trail_log_file_validation_enabled_check when
is_cfn_template(%INPUT_DOCUMENT)
%cloudtrail_trails not empty {
    check(%cloudtrail_trails.Properties) <<
    [CT.CLOUDTRAIL.PR.2]: Require an AWS CloudTrail trail to have log file validation activated
    [FIX]: Set the CloudTrail resource 'EnableLogFileValidation' property to true.
    >>
}

rule cloud_trail_log_file_validation_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDTRAIL_TRAIL_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDTRAIL_TRAIL_TYPE.resourceProperties) <<
    [CT.CLOUDTRAIL.PR.2]: Require an AWS CloudTrail trail to have log file validation activated
    [FIX]: Set the CloudTrail resource 'EnableLogFileValidation' property to true.
    >>
}

# # Parameterized Rules
#
rule check(cloudtrail_trail){
    %cloudtrail_trail {
        # Scenario 2
        EnableLogFileValidation exists
        # Scenario 3 and 4
        EnableLogFileValidation == true
    }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.CLOUDTRAIL.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

LoggingBucket:
  Type: AWS::S3::Bucket
LoggingBucketPolicy:
  Type: AWS::S3::BucketPolicy
Properties:
  Bucket:
    Ref: LoggingBucket
  PolicyDocument:
    Version: 2012-10-17
    Statement:
      - Action:
        - 's3:GetBucketAcl'
        Effect: Allow
      Resource:
        Fn::Join:
        - '',
        - [ 'arn:aws:s3:::',
          Ref: LoggingBucket
        ]
      Principal:
        Service: "cloudtrail.amazonaws.com"
    Condition:
      StringEquals:
        "aws:SourceArn":
        Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/${AWS::StackName}-example-trail"
      - Action:
        - 's3:PutObject'
        Effect: Allow
      Resource:
        Fn::Join:
        - ''
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

LoggingBucket:
  Type: AWS::S3::Bucket

LoggingBucketPolicy:
  Type: AWS::S3::BucketPolicy
  Properties:
    Bucket:
      Ref: LoggingBucket
    PolicyDocument:
      Version: 2012-10-17
      Statement:
        - Action:
          - 's3:GetBucketAcl'
        Effect: Allow
Resource:
  Fn::Join:
    - ''
    - 'arn:aws:s3:::
      - Ref: LoggingBucket
Principal:
  Service: "cloudtrail.amazonaws.com"
Condition:
  StringEquals:
    "aws:SourceArn":
      Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/\n${AWS::StackName}-example-trail"
    - Action:
      - 's3:PutObject'
  Effect: Allow
Resource:
  Fn::Join:
    - ''
    - 'arn:aws:s3:::
      - Ref: LoggingBucket
    - /AWSLogs/
    - Ref: AWS::AccountId
    - /*
Principal:
  Service: "cloudtrail.amazonaws.com"
Condition:
  StringEquals:
    's3:x-amz-acl': 'bucket-owner-full-control'
    "aws:SourceArn":
      Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/\n${AWS::StackName}-example-trail"
CloudTrail:
  Type: AWS::CloudTrail::Trail
Properties:
  IsLogging: true
  TrailName:
    Fn::Sub: ${AWS::StackName}-example-trail
  S3BucketName:
    Ref: LoggingBucket
  EnableLogFileValidation: false
[CT.CLOUDTRAIL.PR.3] Require an AWS CloudTrail trail to have an Amazon CloudWatch Logs log group configuration

This control checks whether your AWS CloudTrail trail is configured to send logs to Amazon CloudWatch Logs.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CloudTrail::Trail
- **AWS CloudFormation guard rule:** [CT.CLOUDTRAIL.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDTRAIL.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDTRAIL.PR.3 example templates](#)

**Explanation**

CloudTrail records AWS API calls that are made in a given account. The recorded information includes: the identity of the API caller, the time of the API call, the source IP address of the API caller, the request parameters and the response elements returned by the AWS service.

CloudTrail uses Amazon S3 for log file storage and delivery. You can capture CloudTrail logs in a specified S3 bucket for long-term analysis. To perform real-time analysis, you can configure CloudTrail to send logs to CloudWatch Logs.

For a trail that is enabled in all AWS Regions in an account, CloudTrail sends log files from all of those Regions to a CloudWatch Logs log group.

AWS CloudTrail recommends that you send CloudTrail logs to CloudWatch Logs. Note that this recommendation is intended to ensure that account activity is captured, monitored, and appropriately alarmed on. You can use CloudWatch Logs to set this up with your AWS services. This recommendation does not preclude the use of a different solution.
Sending CloudTrail logs to CloudWatch Logs facilitates real-time and historic activity logging based on user, API, resource, and IP address. You can use this approach to establish alarms and notifications for anomalous or sensitivity account activity.

**Remediation for rule failure**

Set the `CloudWatchLogsLogGroupArn` and `CloudWatchLogsRoleArn` properties.

The examples that follow show how to implement this remediation.

**AWS CloudTrail trail - Example**

AWS CloudTrail trail configured to send events to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

**JSON example**

```
{
   "CloudTrail": {
      "Type": "AWS::CloudTrail::Trail",
      "Properties": {
         "IsLogging": true,
         "S3BucketName": {
            "Ref": "LoggingBucket"
         },
         "CloudWatchLogsRoleArn": {
            "Fn::GetAtt": [
               "LogRole",
               "Arn"
            ]
         },
         "CloudWatchLogsLogGroupArn": {
            "Fn::GetAtt": [
               "LogGroup",
               "Arn"
            ]
         }
      }
   }
}
```

**YAML example**

```
Proactive controls
```
CloudTrail:
  Type: AWS::CloudTrail::Trail
Properties:
  IsLogging: true
  S3BucketName: !Ref 'LoggingBucket'
  CloudWatchLogsRoleArn: !GetAtt 'LogRole.Arn'
  CloudWatchLogsLogGroupArn: !GetAtt 'LogGroup.Arn'

CT.CLOUDTRAIL.PR.3 rule specification

# ***************************************************************************
##    Rule Specification     ##
# ***************************************************************************
#
# Rule Identifier:
#   cloud_trail_cloud_watch_logs_enabled_check
#
# Description:
#   This rule checks whether AWS CloudTrail trails are configured to send logs to
#   Amazon CloudWatch Logs.
#
# Reports on:
#   AWS::CloudTrail::Trail
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
#           document
#     And: The input document does not contain any AWS CloudTrail trails
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
#           document
# And: The input document contains an AWS CloudTrail trail resource
# And: 'CloudWatchLogsLogGroupArn' or 'CloudWatchLogsRoleArn' is not present
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an AWS CloudTrail trail resource
# And: 'CloudWatchLogsLogGroupArn' is set to a non-empty string or a valid local reference to a log group
# And: 'CloudWatchLogsRoleArn' is set to an empty string or a non-valid local reference
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an AWS CloudTrail trail resource
# And: 'CloudWatchLogsLogGroupArn' is set to an empty string or an invalid local reference
# And: 'CloudWatchLogsRoleArn' is set to a non-empty string or a valid local reference to an IAM role
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an AWS CloudTrail trail resource
# And: 'CloudWatchLogsRoleArn' is set to a non-empty string or a valid local reference to an IAM role
# And: 'CloudWatchLogsLogGroupArn' is set to a non-empty string or a valid local reference to a log group
# Then: PASS

# Constants
#
let CLOUDTRAIL_TRAIL_TYPE = "AWS::CloudTrail::Trail"
let INPUT_DOCUMENT = this

# Assignments
#
let cloudtrail_trails = Resources.*[ Type == %CLOUDTRAIL_TRAIL_TYPE ]

# Primary Rules
# rule cloud_trial_cloud_watch_logs_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%
cloudtrail_trails not empty {
    check_cloudtrail_log_group_configuration(%cloudtrail_trails.Properties)
    <<
    [CT.CLOUDTRAIL.PR.3]: Require an AWS CloudTrail trail to have an CloudTrail log group configuration
    [FIX]: Set the 'CloudWatchLogsLogGroupArn' and 'CloudWatchLogsRoleArn' properties.
    >>
}

rule cloud_trial_cloud_watch_logs_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDTRAIL_TRAIL_TYPE) {
    check_cloudtrail_log_group_configuration(%INPUT_DOCUMENT.%CLOUDTRAIL_TRAIL_TYPE.resourceProperties)
    <<
    [CT.CLOUDTRAIL.PR.3]: Require an AWS CloudTrail trail to have an CloudTrail log group configuration
    [FIX]: Set the 'CloudWatchLogsLogGroupArn' and 'CloudWatchLogsRoleArn' properties.
    >>
}

# # Parameterized Rules
#
rule check_cloudtrail_log_group_configuration(cloudtrail_trail) {
    %cloudtrail_trail {
        # Scenario 2
        CloudWatchLogsLogGroupArn exists
        CloudWatchLogsRoleArn exists

        # Scenario 3, 4 and 5
        check_cloudwatch_log_group_arn(CloudWatchLogsLogGroupArn)
        check_cloudwatch_log_role_arn(CloudWatchLogsRoleArn)
    }
}

rule check_cloudwatch_log_group_arn(log_group) {
    %log_group {
        check_is_string_and_not_empty(this) or
        check_local_references(%INPUT_DOCUMENT, this, "AWS::Logs::LogGroup")
    }
}
rule check_cloudwatch_log_role_arn(log_role) {
    log_role {
        check_is_string_and_not_empty(this) or 
        check_local_references(%INPUT_DOCUMENT, this, "AWS::IAM::Role")
    }
}

# Utility Rules
#
rule check_is_string_and_not_empty(value) {
    value {
        this is_string 
        this != /\A\s*\z/ 
    }
}

rule is_cfn_template(doc) {
    doc {
        AWSTemplateFormatVersion exists or 
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_local_references(doc, reference_properties, referenced_RESOURCE_TYPE) {
    reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_RESOURCE_TYPE) 
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_RESOURCE_TYPE) 
            <<Local Stack reference was invalid>>
        }
    }
}

rule query_for_resource(doc, resource_key, referenced_RESOURCE_TYPE) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
}
CT.CLOUDTRAIL.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  LoggingBucket:
    Type: AWS::S3::Bucket
  LoggingBucketPolicy:
    Type: AWS::S3::BucketPolicy
    Properties:
      Bucket:
        Ref: LoggingBucket
      PolicyDocument:
        Version: 2012-10-17
        Statement:
          - Action:
            - 's3:GetBucketAcl'
          Effect: Allow
          Resource:
            Fn::Join:
            - ''
            - - 'arn:aws:s3:::'
            - Ref: LoggingBucket
          Principal:
            Service: "cloudtrail.amazonaws.com"
          Condition:
            StringEquals:
              "aws:SourceArn":
              Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/
              ${AWS::StackName}-example-trail"
            - Action:
              - 's3:PutObject'
```
Effect: Allow
Resource:
  Fn::Join:
  - ''
  - - 'arn:aws:s3:::'
  - Ref: LoggingBucket
  - /AWSLogs/
  - Ref: AWS::AccountId
  - /*
Principal:
  Service: "cloudtrail.amazonaws.com"
Condition:
  StringEquals:
    's3:x-amz-acl': 'bucket-owner-full-control'
    "aws:SourceArn":
      Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/
${AWS::StackName}-example-trail"
CloudWatchLogsRole:
  Type: "AWS::IAM::Role"
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Sid: AssumeRole
          Effect: Allow
          Principal:
            Service: 'cloudtrail.amazonaws.com'
            Action: 'sts:AssumeRole'
      Policies:
        - PolicyName: 'cloudtrail-policy'
          PolicyDocument:
            Version: '2012-10-17'
            Statement:
              - Effect: Allow
                Action:
                  - 'logs:CreateLogStream'
                  - 'logs:PutLogEvents'
                Resource:
                  Fn::GetAtt: [LogGroup, Arn]
LogGroup:
  Type: AWS::Logs::LogGroup
  Properties: {}
CloudTrail:
  Type: AWS::CloudTrail::Trail
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

**Resources:**

LoggingBucket:
- Type: AWS::S3::Bucket

LoggingBucketPolicy:
- Type: AWS::S3::BucketPolicy
  Properties:
  - Bucket:
    - Ref: LoggingBucket
  PolicyDocument:
    - Version: 2012-10-17
    - Statement:
      - Action:
        - 's3:GetBucketAcl'
      - Effect: Allow
      - Resource:
        - Fn::Join:
          - ''
          - - 'arn:aws:s3:::'
          - Ref: LoggingBucket
      - Principal:
        - Service: "cloudtrail.amazonaws.com"
  Condition:
StringEquals:
  "aws:SourceArn":
   Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/
${AWS::StackName}-example-trail"
- Action:
  - 's3:PutObject'
Effect: Allow
Resource:
  Fn::Join:
   - ''
   - - 'arn:aws:s3:::'
     - Ref: LoggingBucket
     - /AWSLogs/
     - Ref: AWS::AccountId
     - /*
Principal:
  Service: "cloudtrail.amazonaws.com"
Condition:
  StringEquals:
    's3:x-amz-acl': 'bucket-owner-full-control'
    "aws:SourceArn":
      Fn::Sub: "arn:aws:cloudtrail:${AWS::Region}:${AWS::AccountId}:trail/
${AWS::StackName}-example-trail"
CloudTrail:
  Type: AWS::CloudTrail::Trail
Properties:
  IsLogging: true
  TrailName:
    Fn::Sub: ${AWS::StackName}-example-trail
  S3BucketName:
    Ref: LoggingBucket

[CT.CLOUDTRAIL.PR.4] Require an AWS CloudTrail Lake event data store to enable encryption at rest with an AWS KMS key

This control checks whether a CloudTrail Lake event data store is encrypted at rest with a KMS key.

- **Control objective**: Encrypt data at rest
- **Implementation**: AWS CloudFormation guard rule
- **Control behavior**: Proactive
• **Resource types:** AWS::CloudTrail::EventDataStore

• **AWS CloudFormation guard rule:** [CT.CLOUDTRAIL.PR.4 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDTRAIL.PR.4 rule specification](#)

• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CLOUDTRAIL.PR.4 example templates](#)

**Explanation**

Encrypting data at rest reduces the risk that a user not authenticated to AWS may obtain access to data stored on disk. For added control over encryption keys, you can use customer-managed keys from AWS KMS. You have full control over these KMS keys. You can establish and maintain their key policies, IAM policies, and grants, enable and disable the keys, rotate their cryptographic material, add tags, create aliases that refer to the KMS keys, and schedule the KMS keys for deletion.

**Usage considerations**

• All events in an AWS CloudTrail Lake event data store are encrypted by CloudTrail using a KMS key that AWS owns and manages for you. For added control over encryption keys, you can use customer-managed keys from AWS KMS. For more information, see [AWS KMS Concepts](#) in the *AWS KMS Developer Guide*.

**Remediation for rule failure**

Set the KmsKeyId parameter to the ARN of an AWS KMS customer-managed key, configured with permissions that allow the CloudTrail service principal to use the key.

The examples that follow show how to implement this remediation.

**CloudTrail Lake event data store - Example**

CloudTrail Lake event data store configured to encrypt data at rest with an AWS KMS key. The example is shown in JSON and in YAML.

**JSON example**
YAML example

CloudTrailEventDataStore:
  Type: AWS::CloudTrail::EventDataStore
  Properties:
    Name: !Sub '${AWS::StackName}-example'
    TerminationProtectionEnabled: false
    KmsKeyId: !GetAtt 'KMSKey.Arn'

CT.CLOUDTRAIL.PR.4 rule specification

# ################################################################################
##       Rule Specification       ##
################################################################################
#
# Rule Identifier:
#    cloud_trail_event_datastore_encrypted_at_rest_kms_check
#
# Description:
# This control checks whether a CloudTrail Lake event data store is encrypted at rest
# with a KMS key.
#
# Reports on:
# AWS::CloudTrail::EventDataStore
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
# document
# And: The input document does not contain any CloudTrail event data store
# resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
# document
# And: The input document contains a CloudTrail event data store resource
# And: 'KmsKeyId' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
# document
# And: The input document contains a CloudTrail event data store resource
# And: 'KmsKeyId' has been provided as an empty string or invalid local reference
# to a KMS keyID or alias
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation Hook
# Document
# And: The input document contains a CloudTrail event data store resource
# And: 'KmsKeyId' has been provided as a non-empty string or valid local
# reference
# to a KMS keyID or alias
# Then: PASS

# Constants

Proactive controls
let CLOUDTRAIL_EVENT_DATASTORE_TYPE = "AWS::CloudTrail::EventDataStore"
let INPUT_DOCUMENT = this

let cloudtrail_event_datastores = Resources.*[ Type ==
  %CLOUDTRAIL_EVENT_DATASTORE_TYPE ]

rule cloud_trail_event_datastore_encrypted_at_rest_kms_check when
  is_cfn_template(%INPUT_DOCUMENT)
%cloudtrail_event_datastores not empty {
  check(%cloudtrail_event_datastores.Properties)
  <<
  [CT.CLOUDTRAIL.PR.4]: Require an CloudTrail Lake event data store to enable encryption at rest with an AWS KMS key
          [FIX]: Set the 'KmsKeyId' parameter to the ARN of an AWS KMS customer-managed key, configured with permissions that allow the CloudTrail service principal to use the key.
  >>
}

rule cloud_trail_event_datastore_encrypted_at_rest_kms_check when
  is_cfn_hook(%INPUT_DOCUMENT, %CLOUDTRAIL_EVENT_DATASTORE_TYPE) {
  check(%INPUT_DOCUMENT.%CLOUDTRAIL_EVENT_DATASTORE_TYPE.resourceProperties)
  <<
  [CT.CLOUDTRAIL.PR.4]: Require an CloudTrail Lake event data store to enable encryption at rest with an AWS KMS key
          [FIX]: Set the 'KmsKeyId' parameter to the ARN of an AWS KMS customer-managed key, configured with permissions that allow the CloudTrail service principal to use the key.
  >>
}

rule check(cloudtrail_event_datastore) {
  %cloudtrail_event_datastore {
# Scenario 2
KmsKeyId exists

# Scenario 3 and 4
check_is_string_and_not_empty(KmsKeyId) or
check_local_references(%INPUT_DOCUMENT, KmsKeyId, "AWS::KMS::Key") or
check_local_references(%INPUT_DOCUMENT, KmsKeyId, "AWS::KMS::Alias")

# Utility Rules

rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /\A\s*\z/
  }
}

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_local_references(doc, reference_properties, referenced_RESOURCE_TYPE) {
  %reference_properties {
    'Fn::GetAtt' {
      query_for_resource(%doc, this[0], %referenced_RESOURCE_TYPE)
      <<Local Stack reference was invalid>>
    } or Ref {
      query_for_resource(%doc, this, %referenced_RESOURCE_TYPE)
      <<Local Stack reference was invalid>>
    }
  }
}

rule query_for_resource(doc, resource_key, referenced_RESOURCE_TYPE) {

**CT.CLOUDTRAIL.PR.4 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example - Use this template to verify a compliant resource creation.**

```yaml
Resources:
  KMSKey:
    Type: AWS::KMS::Key
    Properties:
      KeyPolicy:
        Version: 2012-10-17
        Id: example-policy
        Statement:
          - Sid: Enable IAM User Permissions
            Effect: Allow
            Principal:
              AWS:
                Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
            Action: kms:*
            Resource: '*'
          - Sid: Allow CloudTrail to encrypt event data store
            Effect: Allow
            Principal:
              Service: "cloudtrail.amazonaws.com"
            Action:
              - "kms:GenerateDataKey"
              - "kms:Decrypt"
            Resource: "*"
     KeySpec: SYMMETRIC_DEFAULT
      EnableKeyRotation: true
      CloudTrailEventDataStore:
```
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
CloudTrailEventDataStore:
  Type: AWS::CloudTrail::EventDataStore
  Properties:
    Name:
      Fn::Sub: ${AWS::StackName}-example
    TerminationProtectionEnabled: false
    MultiRegionEnabled: false
    KmsKeyId:
      Fn::GetAtt:
      - KMSKey
      - Arn

Amazon CloudWatch controls

Topics
- [CT.CLOUDWATCH.PR.1] Require an Amazon CloudWatch alarm to have an action configured for the alarm state
- [CT.CLOUDWATCH.PR.2] Require an Amazon CloudWatch log group to be retained for at least one year
- [CT.CLOUDWATCH.PR.3] Require an Amazon CloudWatch log group to be encrypted at rest with an AWS KMS key
- [CT.CLOUDWATCH.PR.4] Require an Amazon CloudWatch alarm to have actions activated
[CT.CLOUDWATCH.PR.1] Require an Amazon CloudWatch alarm to have an action configured for the alarm state

This control checks whether an Amazon CloudWatch alarm has at least one action configured for the alarm state.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CloudWatch::Alarm
- **AWS CloudFormation guard rule:** [CT.CLOUDWATCH.PR.1 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDWATCH.PR.1 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.CLOUDWATCH.PR.1 example templates](#)

**Explanation**

AWS Control Tower recommends configuring actions for alarms to alert you automatically when an alarm is in the alarm state and the monitored metric is outside the defined threshold. This configuration ensures that alarms are monitored, and that necessary actions are taken when the alarm is triggered. Monitoring alarms help you identify unusual activities and respond quickly to security and operational issues. You can specify the actions an alarm should take when it goes into OK, ALARM, and INSUFFICIENT_DATA states. The most common CloudWatch alarm action in the alarm state is to notify one or more users by sending a message to an Amazon Simple Notification Service (Amazon SNS) topic.

**Remediation for rule failure**

Set `AlarmActions` to a list with one or more alarm action values.

The examples that follow show how to implement this remediation.
Amazon CloudWatch Alarm - Example

An Amazon CloudWatch alarm configured to notify an SNS topic when the CloudWatch alarm is in the alarm state. The example is shown in JSON and in YAML.

JSON example

```
{
   "Alarm": {
      "Type": "AWS::CloudWatch::Alarm",
      "Properties": {
         "ComparisonOperator": "GreaterThanOrEqualToThreshold",
         "EvaluationPeriods": 1,
         "Period": 300,
         "Threshold": 1.0,
         "Namespace": "AWS/Lambda",
         "MetricName": "Errors",
         "TreatMissingData": "missing",
         "Statistic": "Sum",
         "DatapointsToAlarm": 1,
         "ActionsEnabled": true,
         "AlarmActions": [
            {
               "Ref": "Topic"
            }
         ]
      }
   }
}
```

YAML example

```
Alarm:
   Type: AWS::CloudWatch::Alarm
   Properties:
      ComparisonOperator: GreaterThanOrEqualToThreshold
      EvaluationPeriods: 1
      Period: 300
      Threshold: 1.0
      Namespace: AWS/Lambda
```
MetricName: Errors
TreatMissingData: missing
Statistic: Sum
DatapointsToAlarm: 1
ActionsEnabled: true
AlarmActions:
  - !Ref 'Topic'

CT.CLOUDWATCH.PR.1 rule specification

```bash
# ####################################################################
##       Rule Specification        
# ####################################################################

# Rule Identifier:
#  cloudwatch_alarm_action_check

# Description:
#  This control checks whether an Amazon CloudWatch alarm has at least one action
#  configured for the alarm state.

# Reports on:
#  AWS::CloudWatch::Alarm

# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
#  None

# Scenarios:
#  Scenario: 1
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#    And: The input document does not contain any CloudWatch alarm resources
#    Then: SKIP
#  Scenario: 2
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#    And: The input document contains a CloudWatch alarm resource
```
# And: 'AlarmActions' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudWatch alarm resource
# And: 'AlarmActions' has been provided as an empty list
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation Hook
# Document
# And: The input document contains a CloudWatch alarm resource
# And: 'AlarmActions' has been provided as a non-empty list
# Then: PASS

# Constants
#
let CLOUDWATCH_ALARM_TYPE = "AWS::CloudWatch::Alarm"
let INPUT_DOCUMENT = this

# Assignments
#
let cloudwatch_alarms = Resources.*[ Type == %CLOUDWATCH_ALARM_TYPE ]

# Primary Rules
#
rule cloudwatch_alarm_action_check when is_cfn_template(%INPUT_DOCUMENT)
%cloudwatch_alarms not empty {
    check(%cloudwatch_alarms.Properties)
    <<
    [CT.CLOUDWATCH.PR.1]: Require an Amazon CloudWatch alarm to have an action
    configured for the alarm state
    [FIX]: Set 'AlarmActions' to a list with one or more alarm action values.
    >>
}

rule cloudwatch_alarm_action_check when is_cfn_hook(%INPUT_DOCUMENT,
%CLOUDWATCH_ALARM_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDWATCH_ALARM_TYPE.resourceProperties)
    <<
[CT.CLOUDWATCH.PR.1]: Require an Amazon CloudWatch alarm to have an action configured for the alarm state
[FIX]: Set 'AlarmActions' to a list with one or more alarm action values.

```
}
#
# Parameterized Rules
#
rule check(cloudwatch_alarm){
  %cloudwatch_alarm {
    # Scenario 2
    AlarmActions exists
    # Scenarios 3 and 4
    AlarmActions is_list
    AlarmActions not empty
  }
}
#
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

CT.CLOUDWATCH.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
Resources:
  Topic:
    Type: AWS::SNS::Topic
    Properties: {} 
  Alarm:
    Type: AWS::CloudWatch::Alarm
    Properties:
      ComparisonOperator: GreaterThanOrEqualToThreshold
      EvaluationPeriods: 1
      Period: 300
      Threshold: 1.0
      Namespace: AWS/Lambda
      MetricName: Errors
      TreatMissingData: missing
      Statistic: Sum
      DatapointsToAlarm: 1
      ActionsEnabled: true
      AlarmActions:
        - Ref: Topic

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  Alarm:
    Type: AWS::CloudWatch::Alarm
    Properties:
      ComparisonOperator: GreaterThanOrEqualToThreshold
      EvaluationPeriods: 1
      Period: 300
      Threshold: 1.0
      Namespace: AWS/Lambda
      MetricName: Errors
      TreatMissingData: missing
      Statistic: Sum
      DatapointsToAlarm: 1
      ActionsEnabled: true
[CT.CLOUDWATCH.PR.2] Require an Amazon CloudWatch log group to be retained for at least one year

This control checks whether an Amazon CloudWatch Log Group retention period is set to a value greater than or equal to 365 days.

- **Control objective**: Establish logging and monitoring
- **Implementation**: AWS CloudFormation guard rule
- **Control behavior**: Proactive
- **Resource types**: AWS::Logs::LogGroup
- **AWS CloudFormation guard rule**: [CT.CLOUDWATCH.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDWATCH.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.CLOUDWATCH.PR.2 example templates](#)

Explanation

Amazon CloudWatch Logs centralizes the logs from all of your systems, applications, and AWS services in a single, highly scalable service. You can use Amazon CloudWatch Logs to monitor, store, and retrieve your log files from Amazon EC2 instances, CloudTrail, Route 53, and other sources. Retaining your logs for at least one year can help you comply with log retention standards.

**Remediation for rule failure**

Omit the field value of RetentionInDays to adopt the default retention setting of Never expire, or set RetentionInDays to an integer value greater than or equal to 365.

The examples that follow show how to implement this remediation.

**Amazon CloudWatch Log Group - Example**

An Amazon CloudWatch log group configured to retain logs for one year (365 days). The example is shown in JSON and in YAML.

**JSON example**
{ "LogGroup": {   "Type": "AWS::Logs::LogGroup",   "Properties": {     "RetentionInDays": 365   } } }

**YAML example**

```yaml
LogGroup:  
  Type: AWS::Logs::LogGroup  
  Properties:  
    RetentionInDays: 365
```

**CT.CLOUDWATCH.PR.2 rule specification**

```
# ####################################################################
##       Rule Specification        ##
# ####################################################################
#
# Rule Identifier:
#   cloudwatch_log_group_retention_period_check
#
# Description:
#   This control checks whether an Amazon CloudWatch Log Group retention period is set
to a value greater than or equal to 365 days.
#
# Reports on:
#   AWS::Logs::LogGroup
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
```
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any CloudWatch log group resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudWatch log group resource
# And: 'RetentionInDays' has been provided and set to a non integer value or
# integer value less than 365
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudWatch log group resource
# And: 'RetentionInDays' has not been provided
# Then: PASS
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation Hook
Document
# And: The input document contains a CloudWatch log group resource
# And: 'RetentionInDays' has been provided and set to an integer value greater
than or equal to 365
# Then: PASS
#
# Constants
#
let CLOUDWATCH_LOGS_TYPE = "AWS::Logs::LogGroup"
let MINIMUM_RETENTION_IN_DAYS = 365
let INPUT_DOCUMENT = this
#
# Assignments
#
let cloudwatch_log_groups = Resources.*[ Type == %CLOUDWATCH_LOGS_TYPE ]
#
# Primary Rules
#
rule cloudwatch_log_group_retention_period_check when is_cfn_template(%INPUT_DOCUMENT)
    %cloudwatch_log_groups not empty
{
    check(%cloudwatch_log_groups.Properties)
    <=
        [CT.CLOUDWATCH.PR.2]: Require an Amazon CloudWatch log group to be retained for at least one year
        [FIX]: Omit the field value of 'RetentionInDays' to adopt the default retention setting of 'Never expire', or set 'RetentionInDays' to an integer value greater than or equal to 365.
    >>
}

rule cloudwatch_log_group_retention_period_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDWATCH_LOGS_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDWATCH_LOGS_TYPE.resourceProperties)
    <=
        [CT.CLOUDWATCH.PR.2]: Require an Amazon CloudWatch log group to be retained for at least one year
        [FIX]: Omit the field value of 'RetentionInDays' to adopt the default retention setting of 'Never expire', or set 'RetentionInDays' to an integer value greater than or equal to 365.
    >>
}

# # Parameterized Rules
#
rule check(cloudwatch_log_group){
    %cloudwatch_log_group {
        # Scenario 3
        RetentionInDays not exists or

        # Scenarios 2 and 4
        RetentionInDays >= %MINIMUM_RETENTION_IN_DAYS
    }
}

# # Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.CLOUDWATCH.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  LogGroup:
    Type: AWS::Logs::LogGroup
    Properties:
      RetentionInDays: 365

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  LogGroup:
    Type: AWS::Logs::LogGroup
    Properties:
      RetentionInDays: 1
[CT.CLOUDWATCH.PR.3] Require an Amazon CloudWatch log group to be encrypted at rest with an AWS KMS key

This control checks whether an Amazon CloudWatch Logs log group is encrypted at rest with an AWS KMS key

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Logs::LogGroup
- **AWS CloudFormation guard rule:** [CT.CLOUDWATCH.PR.3 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CLOUDWATCH.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.CLOUDWATCH.PR.3 example templates](#)

Explanation

Amazon CloudWatch Logs log groups are encrypted by default using server-side encryption. For added control over encryption keys, you can use customer-managed keys from AWS KMS. You have full control over these KMS keys, including establishing and maintaining their key policies, IAM policies, and grants, enabling and disabling the keys, rotating their cryptographic material, adding tags, creating aliases that refer to the KMS keys, and scheduling the KMS keys for deletion.

Remediation for rule failure

Set KmsKeyId to the ARN of an AWS KMS customer-managed key configured with permissions that allow the CloudWatch service principal to use the key.

The examples that follow show how to implement this remediation.

**Amazon CloudWatch Logs Group - Example**

An Amazon CloudWatch log group configured to encrypt logs with an AWS KMS customer-managed key. The example is shown in JSON and in YAML.
JSON example

```
{
    "LogGroup": {
        "Type": "AWS::Logs::LogGroup",
        "Properties": {
            "KmsKeyId": {
                "Fn::GetAtt": [
                    "KMSKey",
                    "Arn"
                ]
            }
        }
    }
}
```

YAML example

```
LogGroup:
  Type: AWS::Logs::LogGroup
  Properties:
    KmsKeyId: !GetAtt 'KMSKey.Arn'
```

CT.CLOUDWATCH.PR.3 rule specification

```
# ##################################################################
##       Rule Specification        
# ##################################################################
#
# Rule Identifier:
#   cloudwatch_log_group_encrypted_check
#
# Description:
#   This control checks whether an Amazon CloudWatch log group is encrypted at rest
#   with an AWS KMS key
#
# Reports on:
```

Proactive controls

633
# AWS::Logs::LogGroup
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document does not contain any CloudWatch log group resources
#   Then: SKIP
# Scenario: 2
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains a CloudWatch log group resource
#   And: 'KmsKeyId' has not been provided
#   Then: FAIL
# Scenario: 3
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains a CloudWatch log group resource
#   And: 'KmsKeyId' has been provided as an empty string or invalid local reference
to a KMS Key
#   Then: FAIL
# Scenario: 4
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains a CloudWatch log group resource
#   And: 'KmsKeyId' has been provided as a non-empty string or valid local
reference to a KMS Key
#   Then: PASS
#
#
# Constants
#
let CLOUDWATCH_LOGS_TYPE = "AWS::Logs::LogGroup"
let INPUT_DOCUMENT = this
#
# Assignments
#
let cloudwatch_log_groups = Resources.*[ Type == %CLOUDWATCH_LOGS_TYPE ]

#
# Primary Rules
#
rule cloudwatch_log_group_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
    %cloudwatch_log_groups not empty {
        check(%cloudwatch_log_groups.Properties)
        <<
        [CT.CLOUDWATCH.PR.3]: Require an Amazon CloudWatch log group to be encrypted at rest with an AWS KMS key
        [FIX]: Set 'KmsKeyId' to the ARN of an AWS KMS customer managed key configured with permissions that allow the CloudWatch service principal to use the key.
        >>
    }

rule cloudwatch_log_group_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %CLOUDWATCH_LOGS_TYPE) {
    check(%INPUT_DOCUMENT.%CLOUDWATCH_LOGS_TYPE.resourceProperties)
    <<
    [CT.CLOUDWATCH.PR.3]: Require an Amazon CloudWatch log group to be encrypted at rest with an AWS KMS key
    [FIX]: Set 'KmsKeyId' to the ARN of an AWS KMS customer managed key configured with permissions that allow the CloudWatch service principal to use the key.
    >>
}

#
# Parameterized Rules
#
rule check(cloudwatch_log_group){
    %cloudwatch_log_group {
        # Scenario 2
        KmsKeyId exists
        # Scenario 3 and 4
        check_is_string_and_not_empty(KmsKeyId) or
        check_local_references(%INPUT_DOCUMENT, KmsKeyId, "AWS::KMS::Key")
    }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
%doc {
    AWSTemplateFormatVersion exists or 
    Resources exists
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_resource_type)
            <<Local Stack reference was invalid>>
        }
    }
}

rule query_for_resource(doc, resource_key, resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    %referenced_resource not empty
    %referenced_resource {
        Type == %resource_type
    }
}

CT.CLOUDWATCH.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.
PASS Example - Use this template to verify a compliant resource creation.

Resources:
KMSKey:
  Type: AWS::KMS::Key
  Properties:
    KeyPolicy:
      Version: 2012-10-17
      Id: example-cloudwatch-logs-key-policy
      Statement:
        - Sid: Enable IAM User Permissions
          Effect: Allow
          Principal:
            AWS:
              Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
          Action: kms:*
          Resource: "*
        - Sid: Enable Logs
          Effect: Allow
          Principal:
            Service:
              Fn::Sub: logs.${AWS::Region}.amazonaws.com
          Action:
            - kms:Encrypt*
            - kms:Decrypt*
            - kms:ReEncrypt*
            - kms:GenerateDataKey*
            - kms:Describe
          Resource: "*
          Condition:
            ArnEquals:
              kms:EncryptionContext:aws:logs:arn:
              Fn::Sub: arn:${AWS::Partition}:logs:${AWS::Region}:${AWS::AccountId}:*

LogGroup:
  Type: AWS::Logs::LogGroup
  Properties:
    KmsKeyId:
      Fn::GetAtt:
        - KMSKey
        - Arn
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  LogGroup:
    Type: AWS::Logs::LogGroup
    Properties: {}
The examples that follow show how to implement this remediation.

**Amazon CloudWatch Alarm - Example**

An Amazon CloudWatch alarm configured with alarm actions enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "Alarm": {
        "Type": "AWS::CloudWatch::Alarm",
        "Properties": {
            "AlarmActions": [
                {
                    "Ref": "Topic"
                }
            ],
            "ComparisonOperator": "GreaterThanOrEqualToThreshold",
            "EvaluationPeriods": 1,
            "Period": 300,
            "Threshold": 1.0,
            "Namespace": "AWS/Lambda",
            "MetricName": "Errors",
            "TreatMissingData": "missing",
            "Statistic": "Sum",
            "DatapointsToAlarm": 1,
            "ActionsEnabled": true
        }
    }
}
```

**YAML example**

```yaml
Alarm:
  Type: AWS::CloudWatch::Alarm
  Properties:
    AlarmActions:
      - !Ref 'Topic'
    ComparisonOperator: GreaterThanOrEqualToThreshold
```

Proactive controls
EvaluationPeriods: 1
Period: 300
Threshold: 1.0
Namespace: AWS/Lambda
MetricName: Errors
TreatMissingData: missing
Statistic: Sum
DatapointsToAlarm: 1
ActionsEnabled: true

CT.CLOUDWATCH.PR.4 rule specification

# ####################################################################
##       Rule Specification        ##
# ####################################################################
#
# Rule Identifier:
#    cloudwatch_alarm_action_enabled_check
#
# Description:
#    This control checks whether an Amazon CloudWatch alarm has actions enabled.
#
# Reports on:
#    AWS::CloudWatch::Alarm
#
# Evaluates:
#    AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#    None
#
# Scenarios:
#    Scenario: 1
#        Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document does not contain any CloudWatch alarm resources
#        Then: SKIP
#    Scenario: 2
#        Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CloudWatch alarm resource
# And: 'ActionsEnabled' has been provided and set to a value other than
bool(true)
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CloudWatch alarm resource
# And: 'ActionsEnabled' has not been provided
# Then: PASS
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation Hook
Document
# And: The input document contains a CloudWatch alarm resource
# And: 'ActionsEnabled' has been provided with a value of bool(true)
# Then: PASS

# Constants
#
let CLOUDWATCH_ALARM_TYPE = "AWS::CloudWatch::Alarm"
let INPUT_DOCUMENT = this

# Assignments
#
let cloudwatch_alarms = Resources.*[ Type == %CLOUDWATCH_ALARM_TYPE ]

# Primary Rules
#
rule cloudwatch_alarm_action_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%cloudwatch_alarms not empty {
    check(%cloudwatch_alarms.Properties)
    %cloudwatch_alarms not empty {
        [CT.CLOUDWATCH.PR.4]: Require an Amazon CloudWatch alarm to have actions
        activated
        [FIX]: Set 'ActionsEnabled' to 'true' or do not provide the 'ActionsEnabled'
        property.
    } >>
}

rule cloudwatch_alarm_action_enabled_check when is_cfn_hook(%INPUT_DOCUMENT,
%CLOUDWATCH_ALARM_TYPE) {

check(%INPUT_DOCUMENT.%CLOUDWATCH_ALARM_TYPE.resourceProperties)
<<
[CT.CLOUDWATCH.PR.4]: Require an Amazon CloudWatch alarm to have actions activated
[FIX]: Set 'ActionsEnabled' to 'true' or do not provide the 'ActionsEnabled' property.
>>
#
# Parameterized Rules
#
rule check(cloudwatch_alarm){
  %cloudwatch_alarm {
    # Scenario 3
    ActionsEnabled not exists or
    # Scenarios 2 and 4
    ActionsEnabled == true
  }
}
#
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc { 
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.CLOUDWATCH.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
Resources:
  Topic:
   Type: AWS::SNS::Topic
   Properties: {}
  Alarm:
   Type: AWS::CloudWatch::Alarm
   Properties:
     AlarmActions:
       - Ref: Topic
       ComparisonOperator: GreaterThanOrEqualToThreshold
     EvaluationPeriods: 1
     Period: 300
     Threshold: 1.0
     Namespace: AWS/Lambda
     MetricName: Errors
     TreatMissingData: missing
     Statistic: Sum
     DatapointsToAlarm: 1
     ActionsEnabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
AWS CodeBuild controls

Topics

- [CT.CODEBUILD.PR.1] Require OAuth on GitHub or Bitbucket source repository URLs for AWS CodeBuild projects
- [CT.CODEBUILD.PR.2] Require any AWS CodeBuild project environment variable to encrypt credentials in environment variables
- [CT.CODEBUILD.PR.3] Require any AWS CodeBuild project environment to have logging configured
- [CT.CODEBUILD.PR.4] Require any AWS CodeBuild project to deactivate privileged mode when running
- [CT.CODEBUILD.PR.5] Require encryption on all AWS CodeBuild project artifacts
- [CT.CODEBUILD.PR.6] Require encryption on all Amazon S3 logs for AWS CodeBuild projects

[CT.CODEBUILD.PR.1] Require OAuth on GitHub or Bitbucket source repository URLs for AWS CodeBuild projects

This control checks whether the GitHub or Bitbucket source repository URL contains either personal access tokens or a user name and password.

- **Control objective:** Use strong authentication
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CodeBuild::Project
- **AWS CloudFormation guard rule:** [CT.CODEBUILD.PR.1 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CODEBUILD.PR.1 rule specification](#)
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CODEBUILD.PR.1 example templates](#)

**Explanation**

Authentication credentials should never be stored or transmitted in clear text or appear in the repository URL. Instead of personal access tokens or username and password, you should use OAuth to grant authorization for accessing GitHub or Bitbucket repositories. Using personal access tokens or a username and password could expose your credentials to unintended data exposure and unauthorized access.

**Usage considerations**

- This control applies only to AWS CodeBuild projects with a primary or secondary source type of GitHub or Bitbucket.

**Remediation for rule failure**

Remove any embedded credentials from repository URLs in AWS CodeBuild project source configurations. Instead, connect your CodeBuild projects to GitHub or Bitbucket repositories by configuring GitHub Access Token or Bitbucket App Password credentials in the AWS Management Console or AWS CLI.

The examples that follow show how to implement this remediation.

**AWS CodeBuild Project - Example One**

AWS CodeBuild project configured with a GitHub primary source location that does not contain a personal access token. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "CodeBuildProject": {
        "Type": "AWS::CodeBuild::Project",
        "Properties": {
            "Artifacts": {
                "Type": "NO_ARTIFACTS"
```
YAML example

CodeBuildProject:
  Type: AWS::CodeBuild::Project
Properties:
  Artifacts:
    Type: NO_ARTIFACTS
  Environment:
    ComputeType: BUILD_GENERAL1_SMALL
    Image: aws/codebuild/standard:4.0
    Type: LINUX_CONTAINER
  ServiceRole: !GetAtt 'CodeBuildServiceRole.Arn'
  Source:
    BuildSpec: |
      version: 0.2
      phases:
        install:
          commands:

Proactive controls
The examples that follow show how to implement this remediation.

**AWS CodeBuild Project - Example Two**

AWS CodeBuild project configured with primary and secondary source locations that do not contain credentials or personal access tokens. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "CodeBuildProject": {
    "Type": "AWS::CodeBuild::Project",
    "Properties": {
      "Artifacts": {
        "Type": "NO_ARTIFACTS"
      },
      "Environment": {
        "ComputeType": "BUILD_GENERAL1_SMALL",
        "Image": "aws/codebuild/standard:4.0",
        "Type": "LINUX_CONTAINER"
      },
      "ServiceRole": {
        "Fn::GetAtt": [
          "CodeBuildServiceRole",
          "Arn"
        ]
      },
      "Source": {
        "BuildSpec": "version: 0.2
phases:
  install:
    commands:
      - npm install
  build:
    commands:
      - npm test
artifacts:
  files:
    - "**/*"

Type: GITHUB
Location: https://github.com/username/repo.git
```

- npm install
  build:
    commands:
      - npm test
artifacts:
  files:
    - "**/*"

The examples that follow show how to implement this remediation.

**AWS CodeBuild Project - Example Two**

AWS CodeBuild project configured with primary and secondary source locations that do not contain credentials or personal access tokens. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "CodeBuildProject": {
    "Type": "AWS::CodeBuild::Project",
    "Properties": {
      "Artifacts": {
        "Type": "NO_ARTIFACTS"
      },
      "Environment": {
        "ComputeType": "BUILD_GENERAL1_SMALL",
        "Image": "aws/codebuild/standard:4.0",
        "Type": "LINUX_CONTAINER"
      },
      "ServiceRole": {
        "Fn::GetAtt": [
          "CodeBuildServiceRole",
          "Arn"
        ]
      },
      "Source": {
        "BuildSpec": "version: 0.2
phases:
  install:
    commands:
      - npm install
  build:
    commands:
      - npm test
artifacts:
  files:
    - "**/*"

Type: GITHUB
Location: https://github.com/username/repo.git
```

- npm install
  build:
    commands:
      - npm test
artifacts:
  files:
    - "**/*"
YAML example

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Artifacts:
      Type: NO_ARTIFACTS
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
    ServiceRole: !GetAtt 'CodeBuildServiceRole.Arn'
  Source:
    BuildSpec: |
      version: 0.2
      phases:
        install:
          commands:
            - npm install
        build:
          commands:
            - npm test
        artifacts:
          files:
            - '**/*'
      Type: BITBUCKET
      Location: https://bitbucket.org/user/repo.git
CT.CODEBUILD.PR.1 rule specification

# ###################################################################
##       Rule Specification        ##
# ###################################################################
#
# Rule Identifier:
#   codebuild_project_source_repo_url_check
#
# Description:
#   This control checks whether the GitHub or Bitbucket source repository URL contains
#   either personal access tokens or a username and password.
#
# Reports on:
#   AWS::CodeBuild::Project
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any CodeBuild project resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a CodeBuild project resource
#       'Source' configuration is not of 'Type' 'GITHUB' or 'BITBUCKET'
#       And: 'SecondarySources' configuration is not provided or is provided and does
#       not have any item of 'Type'
# 'GITHUB' or 'BITBUCKET'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CodeBuild project resource
# And: 'Source' configuration is of 'Type' 'GITHUB' or 'BITBUCKET'
# And: 'Source' configuration has a 'Location' that contains credentials
(username and password for BitBucket
and Access Token for GitHub)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CodeBuild project resource
# And: 'SecondarySources' configuration is provided
# And: 'SecondarySources' configuration has one or more items of 'Type' 'GITHUB'
or 'BITBUCKET'
# And: 'SecondarySources' configuration has one or more items with 'Location'
that contains credentials
(username and password for BitBucket and Access Token for GitHub)
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CodeBuild project resource
# And: 'Source' configuration is of 'Type' 'GITHUB' or 'BITBUCKET'
# And: 'Source' configuration has a 'Location' that does not contain credentials
(username and password for
BitBucket and Access Token for GitHub)
# And: 'SecondarySources' configuration is not provided or is provided and does
not have any item of 'Type'
# 'GITHUB' or 'BITBUCKET'
# Then: PASS
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CodeBuild project resource
# And: 'Source' configuration is of 'Type' 'GITHUB' or 'BITBUCKET'
# And: 'Source' configuration has a 'Location' that does not contain credentials
(username and password for
BitBucket and Access Token for GitHub)
# And: 'SecondarySources' configuration is provided
And: 'SecondarySources' configuration has one or more items of 'Type' 'GITHUB' or 'BITBUCKET'
And: 'SecondarySources' configuration has one or more items with 'Location' that does not contain credentials
Then: PASS

# Constants

let CODEBUILD_PROJECT_TYPE = "AWS::CodeBuild::Project"
let INPUT_DOCUMENT = this
let GITHUB_COMPLIANT_URL_PATTERN = /^(http(s)?)(://github\.com/)([^/]+)/([^\w\.\-]+)\.(git)?$/
let BITBUCKET_COMPLIANT_URL_PATTERN = /^https?://bitbucket\.org/.

# Assignments

let codebuild_project = Resources.*[ Type == %CODEBUILD_PROJECT_TYPE ]

# Primary Rules

rule codebuild_project_source_repo_url_check when is_cfn_template(%INPUT_DOCUMENT) %codebuild_project not empty {
    check(%codebuild_project.Properties)
    %codebuild_project not empty {

        [CT.CODEBUILD.PR.1]: Require OAuth on GitHub or Bitbucket source repository URLs for AWS CodeBuild projects
        [FIX]: Remove any embedded credentials from repository URLs in AWS CodeBuild project source configurations. Instead, connect your CodeBuild projects to 'GitHub' or 'Bitbucket' repositories by configuring 'GitHub Access Token' or 'Bitbucket App Password' credentials in the AWS Management Console or AWS CLI.
    }  
}

rule codebuild_project_source_repo_url_check when is_cfn_hook(%INPUT_DOCUMENT, %CODEBUILD_PROJECT_TYPE) {
    check(%INPUT_DOCUMENT.%CODEBUILD_PROJECT_TYPE.resourceProperties)
    %INPUT_DOCUMENT.%CODEBUILD_PROJECT_TYPE.resourceProperties {

        [CT.CODEBUILD.PR.1]: Require OAuth on GitHub or Bitbucket source repository URLs for AWS CodeBuild projects
[FIX]: Remove any embedded credentials from repository URLs in AWS CodeBuild project source configurations. Instead, connect your CodeBuild projects to 'GitHub' or 'Bitbucket' repositories by configuring 'GitHub Access Token' or 'Bitbucket App Password' credentials in the AWS Management Console or AWS CLI.

```python
rule check(codebuild_project) {
    %codebuild_project[
        filter_github_or_bitbucket_source_configuration(this) or
        filter_github_or_bitbucket_secondary_sources_configuration(this)
    ] {
        # Scenario 3, 5 and 6
        check_source(Source)
        # Scenario 4 and 6
        check_secondary_sources(this)
    }
}

rule filter_github_or_bitbucket_source_configuration(codebuild_project) {
    %codebuild_project {
        Source exists
        Source is_struct
        Source {
            Type == "GITHUB" or
            Type == "BITBUCKET"
        }
    }
}

rule filter_github_or_bitbucket_secondary_sources_configuration(codebuild_project) {
    %codebuild_project {
        SecondarySources exists
        SecondarySources is_list
        SecondarySources not empty

        some SecondarySources[*] {
            Type == "GITHUB" or
            Type == "BITBUCKET"
        }
    }
}
rule check_source(codebuild_source) {
    %codebuild_source [
        Type == "GITHUB"
    ] {
        Location exists
        Location == %GITHUB_COMPLIANT_URL_PATTERN
    }
    %codebuild_source [
        Type == "BITBUCKET"
    ] {
        Location exists
        Location == %BITBUCKET_COMPLIANT_URL_PATTERN
    }
}

rule check_secondary_sources(codebuild_project) {
    %codebuild_project [
        # Scenario 2
        SecondarySources exists
        SecondarySources is_list
        SecondarySources not empty
    ] {
        # Scenario 4 and 6
        SecondarySources[*] {
            check_source(this)
        }
    }
}

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
**CT.CODEBUILD.PR.1 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example - Use this template to verify a compliant resource creation.**

Resources:

- **CodeBuildServiceRole:**
  - Type: AWS::IAM::Role
  - Properties:
    - AssumeRolePolicyDocument:
      - Version: '2012-10-17'
      - Statement:
        - Effect: Allow
        - Principal:
          - Service: codebuild.amazonaws.com
          - Action: sts:AssumeRole

- **CodeBuildProject:**
  - Type: AWS::CodeBuild::Project
  - Properties:
    - Artifacts:
      - Type: NO_ARTIFACTS
    - Environment:
      - ComputeType: BUILD_GENERAL1_SMALL
      - Image: aws/codebuild/standard:4.0
      - Type: LINUX_CONTAINER
  - ServiceRole:
    - Fn::GetAtt:
      - CodeBuildServiceRole
      - Arn
    - Source:
      - BuildSpec: |
        version: 0.2
        phases:
          install:
            commands:
              - npm install
        build:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

CodeBuildServiceRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service: codebuild.amazonaws.com
          Action: sts:AssumeRole

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Artifacts:
      Type: NO_ARTIFACTS
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
    ServiceRole:
      Fn::GetAtt:
        - CodeBuildServiceRole
        - Arn
    Source:
      BuildSpec:
        version: 0.2
        phases:
          install:
[CT.CODEBUILD.PR.2] Require any AWS CodeBuild project environment variable to encrypt credentials in environment variables

This control checks whether AWS CodeBuild projects contain environment variables AWS_ACCESS_KEY_ID and AWS_SECRET_ACCESS_KEY stored as PLAINTEXT.

- **Control objective:** Use strong authentication
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CodeBuild::Project
- **AWS CloudFormation guard rule:** [CT.CODEBUILD.PR.2 rule specification]

### Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CODEBUILD.PR.2 rule specification]
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CODEBUILD.PR.2 example templates]

### Explanation

Authentication credentials AWS_ACCESS_KEY_ID and AWS_SECRET_ACCESS_KEY should never be stored in clear text, as this could lead to unintended data exposure and unauthorized access.
Usage considerations

• This control only applies to AWS CodeBuild projects configured with
  AWS_ACCESS_KEY_ID and AWS_SECRET_ACCESS_KEY environment variables

Remediation for rule failure

Use PARAMETER_STORE or SECRETS_MANAGER to store values for environment variables named
AWS_ACCESS_KEY_ID or AWS_SECRET_ACCESS_KEY.

The examples that follow show how to implement this remediation.

AWS CodeBuild Project - Example

AWS CodeBuild project configured to use credentials stored in AWS Secrets Manager. The example
is shown in JSON and in YAML.

JSON example

{  
   "CodeBuildProject": {  
      "Type": "AWS::CodeBuild::Project",
      "Properties": {  
         "Artifacts": {  
            "Type": "NO_ARTIFACTS"
         },
         "Environment": {  
            "ComputeType": "BUILD_GENERAL1_SMALL",
            "Image": "aws/codebuild/standard:4.0",
            "Type": "LINUX_CONTAINER",
            "EnvironmentVariables": [
               {
                  "Name": "AWS_ACCESS_KEY_ID",
                  "Type": "SECRETS_MANAGER",
                  "Value": "sample_secret:access_key_id"
               },
               {
                  "Name": "AWS_SECRET_ACCESS_KEY",
                  "Type": "SECRETS_MANAGER",
                  "Value": "sample_secret:secret_access_key"
               }
            ]
         }
      }
   }
}
YAML example

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Artifacts:
      Type: NO_ARTIFACTS
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
      EnvironmentVariables:
        - Name: AWS_ACCESS_KEY_ID
          Type: SECRETS_MANAGER
          Value: sample_secret:access_key_id
        - Name: AWS_SECRET_ACCESS_KEY
          Type: SECRETS_MANAGER
          Value: sample_secret:secret_access_key
    ServiceRole: !GetAtt 'CodeBuildServiceRole.Arn'
  Source:
    Type: NO_SOURCE
    BuildSpec: |
version: 0.2
phases:
  install:
    commands:
      - npm install
  build:
    commands:
      - npm test
artifacts:
  files:
    - '**/*'

CT.CODEBUILD.PR.2 rule specification

# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   codebuild_project_envvar_awscred_check
#
# Description:
#   This control checks whether AWS CodeBuild projects contain environment variables
#   'AWS_ACCESS_KEY_ID' and 'AWS_SECRET_ACCESS_KEY' stored as 'PLAINTEXT'.
#
# Reports on:
#   AWS::CodeBuild::Project
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation Hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any CodeBuild project resources
#     Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains a CodeBuild project resource
#       And: 'Environment' configuration does not contain 'EnvironmentVariables'
#       Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains a CodeBuild project resource
#       And: 'Environment' configuration contains 'EnvironmentVariables'
#       And: 'EnvironmentVariables' contain variables named 'AWS_ACCESS_KEY_ID' or 'AWS_SECRET_ACCESS_KEY'
#       And: 'Type' is not provided for 'AWS_ACCESS_KEY_ID' and 'AWS_SECRET_ACCESS_KEY' environment variables or is provided as an empty string.
#       Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains a CodeBuild project resource
#       And: 'Environment' configuration contains 'EnvironmentVariables'
#       And: 'EnvironmentVariables' contain variables named 'AWS_ACCESS_KEY_ID' or 'AWS_SECRET_ACCESS_KEY'
#       And: 'Type' is set to 'PLAINTEXT' for 'AWS_ACCESS_KEY_ID' or 'AWS_SECRET_ACCESS_KEY' environment variables
#       Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains a CodeBuild project resource
#       And: 'Environment' configuration contains 'EnvironmentVariables'
#       And: 'EnvironmentVariables' does not contain variables named 'AWS_ACCESS_KEY_ID' or 'AWS_SECRET_ACCESS_KEY'
#       Then: PASS
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains a CodeBuild project resource
#       And: 'Environment' configuration contains 'EnvironmentVariables'
#       And: 'EnvironmentVariables' contain variables named 'AWS_ACCESS_KEY_ID' or 'AWS_SECRET_ACCESS_KEY'
#       And: 'Type' is provided as a non-empty string and not set to 'PLAINTEXT' for 'AWS_ACCESS_KEY_ID' or
# 'AWS_SECRET_ACCESS_KEY' environment variables
# Then: PASS

#
#
# Constants
#
let CODEBUILD_PROJECT_TYPE = "AWS::CodeBuild::Project"
let AWS_CREDENTIAL_ENV_VAR_NAMES = [ "AWS_ACCESS_KEY_ID", "AWS_SECRET_ACCESS_KEY" ]
let INPUT_DOCUMENT = this

#
#
# Assignments
#
let codebuild_project = Resources.*[ Type == %CODEBUILD_PROJECT_TYPE ]

#
#
# Primary Rules
#
rule codebuild_project_envvar_awscred_check when is_cfn_template(%INPUT_DOCUMENT) {
  check(%codebuild_project.Properties)
    %codebuild_project not empty {
      [CT.CODEBUILD.PR.2]: Require any AWS CodeBuild project environment variable to encrypt credentials in environment variables
      [FIX]: Use 'PARAMETER_STORE' or 'SECRETS_MANAGER' to store values for environment variables named 'AWS_ACCESS_KEY_ID' or 'AWS_SECRET_ACCESS_KEY'.
      >>
    }
}

rule codebuild_project_envvar_awscred_check when is_cfn_hook(%INPUT_DOCUMENT, %CODEBUILD_PROJECT_TYPE) {
  check(%INPUT_DOCUMENT.%CODEBUILD_PROJECT_TYPE.resourceProperties)
    <<
      [CT.CODEBUILD.PR.2]: Require any AWS CodeBuild project environment variable to encrypt credentials in environment variables
      [FIX]: Use 'PARAMETER_STORE' or 'SECRETS_MANAGER' to store values for environment variables named 'AWS_ACCESS_KEY_ID' or 'AWS_SECRET_ACCESS_KEY'.
      >>
}

#
#
# Parameterized Rules
#
rule check(codebuild_project) {
  %codebuild_project [
    # Scenario 2
    filter_codebuild_projects_with_environment_variables(this)
] {
  Environment exists
  Environment is_struct
  Environment {
    EnvironmentVariables exists
    EnvironmentVariables is_list
    EnvironmentVariables not empty
    EnvironmentVariables [
      # Scenario 3, 4 and 6
      Name in %AWS_CREDENTIAL_ENV_VAR_NAMES
    ] {
      # Scenario 3
      Type exists
      check_is_string_and_not_empty(Type)
      # Scenario 4 and 6
      Type != "PLAINTEXT"
    }
  }
}
}

rule filter_codebuild_projects_with_environment_variables(codebuild_project) {
  %codebuild_project {
    Environment exists
    Environment is_struct
    Environment {
      # Scenario 2
      EnvironmentVariables exists
      EnvironmentVariables is_list
      EnvironmentVariables not empty
    }
  }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
CT.CODEBUILD.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
CodeBuildServiceRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service: codebuild.amazonaws.com
          Action: sts:AssumeRole
CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Artifacts:
      Type: NO_ARTIFACTS
    Environment:
ComputeType: BUILD_GENERAL1_SMALL
Image: aws/codebuild/standard:4.0
Type: LINUX_CONTAINER
EnvironmentVariables:
- Name: AWS_ACCESS_KEY_ID
  Type: SECRETS_MANAGER
  Value: example_secret:access_key_id
- Name: AWS_SECRET_ACCESS_KEY
  Type: SECRETS_MANAGER
  Value: example_secret:secret_access_key
- Name: some_other_variable
  Type: PLAINTEXT
  Value: example
ServiceRole:
  Fn::GetAtt:
  - CodeBuildServiceRole
  - Arn
Source:
  Type: NO_SOURCE
BuildSpec: |
  version: 0.2
  phases:
    install:
      commands:
        - npm install
    build:
      commands:
        - npm test
  artifacts:
    files:
      - '**/*'

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  CodeBuildServiceRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
Version: '2012-10-17'
Statement:
- Effect: Allow
  Principal:
    Service: codebuild.amazonaws.com
  Action: sts:AssumeRole
CodeBuildProject:
  Type: AWS::CodeBuild::Project
Properties:
  Artifacts:
    Type: NO_ARTIFACTS
Environment:
  ComputeType: BUILD_GENERAL1_SMALL
  Image: aws/codebuild/standard:4.0
  Type: LINUX_CONTAINER
  EnvironmentVariables:
    - Name: AWS_ACCESS_KEY_ID
      Type: PLAINTEXT
      Value: EXAMPLE_ACCESS_KEY_ID
    - Name: AWS_SECRET_ACCESS_KEY
      Type: PLAINTEXT
      Value: EXAMPLE_SECRET_ACCESS_KEY
ServiceRole:
  Fn::GetAtt:
    - CodeBuildServiceRole
    - Arn
Source:
  Type: NO_SOURCE
BuildSpec: |
  version: 0.2
  phases:
    install:
      commands:
        - npm install
    build:
      commands:
        - npm test
  artifacts:
    files:
      - '**/*'
[CT.CODEBUILD.PR.3] Require any AWS CodeBuild project environment to have logging configured

This control checks whether AWS CodeBuild projects environment has at least one logging option enabled.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CodeBuild::Project
- **AWS CloudFormation guard rule:** [CT.CODEBUILD.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CODEBUILD.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CODEBUILD.PR.3 example templates](#)

**Explanation**

From a security perspective, logging is an important feature to enable, to assist future forensics efforts in case of a security incident. Correlating anomalies in CodeBuild projects with threat detections can increase confidence in the accuracy of those threat detections.

**Remediation for rule failure**

Set LogsConfig with a CloudWatchLogs or S3Logs configuration.

The examples that follow show how to implement this remediation.

**AWS CodeBuild Project - Example One**

AWS CodeBuild project configured to enable logging, by means of Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

**JSON example**
YAML example

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Artifacts:
      Type: NO_ARTIFACTS
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
    ServiceRole:
      Fn::GetAtt: [
        CodeBuildServiceRole,
        Arn
      ]
    Source:
      Type: NO_SOURCE
      BuildSpec: version: 0.2
      phases:
        install:
          commands:
            - npm install
        build:
          commands:
            - npm test
      LogsConfig:
        CloudWatchLogs:
          Status: ENABLED

Proactive controls
The examples that follow show how to implement this remediation.

**AWS CodeBuild Project - Example Two**

AWS CodeBuild project configured to enable logging, by means of Amazon S3. The example is shown in JSON and in YAML.

**JSON example**

```
{
    "CodeBuildProject": {
        "Type": "AWS::CodeBuild::Project",
        "Properties": {
            "Artifacts": {
                "Type": "NO_ARTIFACTS"
            },
            "Environment": {
                "ComputeType": "BUILD_GENERAL1_SMALL",
                "Image": "aws/codebuild/standard:4.0",
                "Type": "LINUX_CONTAINER"
            },
            "ServiceRole": {
                "Fn::GetAtt": [
                    "CodeBuildServiceRole",
                    "Arn"
                ]
            }
        }
    }
}
```
YAML example

CodeBuildProject:
  Type: AWS::CodeBuild::Project
Properties:
  Artifacts:
    Type: NO_ARTIFACTS
  Environment:
    ComputeType: BUILD_GENERAL1_SMALL
    Image: aws/codebuild/standard:4.0
    Type: LINUX_CONTAINER
  ServiceRole: !GetAtt 'CodeBuildServiceRole.Arn'
  Source:
    Type: NO_SOURCE
    BuildSpec: "version: 0.2\n    phases:\n      install:\n        commands:\n        - npm install\n    build:\n      commands:\n        - npm test"
Proactive controls
# And: The input document contains a CodeBuild project resource
# And: 'LogsConfig' is not provided on the CodeBuild project resource
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CodeBuild project resource
# And: 'LogsConfig' is provided on the CodeBuild project resource
# And: Neither 'CloudWatchLogs' or 'S3Logs' are present in 'LogsConfig'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CodeBuild project resource
# And: 'LogsConfig' is provided on the CodeBuild project resource
# And: 'CloudWatchLogs' is not present in 'LogsConfig'
# And: 'S3Logs' is present in 'LogsConfig' with 'Status' set to 'DISABLED'
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CodeBuild project resource
# And: 'LogsConfig' is provided on the CodeBuild project resource
# And: 'S3Logs' is not present in 'LogsConfig'
# And: 'CloudWatchLogs' is present in 'LogsConfig' with 'Status' set to 'DISABLED'
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CodeBuild project resource
# And: 'LogsConfig' is provided on the CodeBuild project resource
# And: 'CloudWatchLogs' and 'S3Logs' are present in 'LogsConfig' with 'Status' set to 'DISABLED'
# Then: FAIL
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CodeBuild project resource
# And: 'LogsConfig' is provided on the CodeBuild project resource
# And: 'CloudWatchLogs' is not present in 'LogsConfig'
# And: 'S3Logs' is present in 'LogsConfig' with 'Status' set to 'ENABLED'
# And: 'Location' has not been provided in 'S3Logs', or has been provided as an empty string or
invalid local reference
Then: FAIL
Scenario: 8
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CodeBuild project resource
And: 'LogsConfig' is provided on the CodeBuild project resource
And: 'S3Logs' is not present in 'LogsConfig'
And: 'CloudWatchLogs' is present in 'LogsConfig' with 'Status' set to 'ENABLED'
Then: PASS
Scenario: 9
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CodeBuild project resource
And: 'LogsConfig' is provided on the CodeBuild project resource
And: 'CloudWatchLogs' is not present in 'LogsConfig'
And: 'S3Logs' is present in 'LogsConfig' with 'Status' set to 'ENABLED'
And: 'Location' has been provided in 'S3Logs' as a non-empty string or valid local reference
Then: PASS
Scenario: 10
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CodeBuild project resource
And: 'LogsConfig' is provided on the CodeBuild project resource
And: 'CloudWatchLogs' is present in 'LogsConfig' with 'Status' set to 'ENABLED'
And: 'S3Logs' is present in 'LogsConfig' with 'Status' set to 'ENABLED'
And: 'Location' has been provided in 'S3Logs' as a non-empty string or valid local reference
Then: PASS

# Constants
let CODEBUILD_PROJECT_TYPE = "AWS::CodeBuild::Project"
let INPUT_DOCUMENT = this

# Assignments
let codebuild_project = Resources.*[ Type == %CODEBUILD_PROJECT_TYPE ]

# Primary Rules
# codebuild_project_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%codebuild_project not empty {
    check(%codebuild_project.Properties)
    if:
        [CT.CODEBUILD.PR.3]: Require any AWS CodeBuild project environment to have logging configured
        [FIX]: Set 'LogsConfig' with a 'CloudWatchLogs' or 'S3Logs' configuration.
    }
}

# codebuild_project_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %CODEBUILD_PROJECT_TYPE) {
    check(%INPUT_DOCUMENT.%CODEBUILD_PROJECT_TYPE.resourceProperties)
    if:
        [CT.CODEBUILD.PR.3]: Require any AWS CodeBuild project environment to have logging configured
        [FIX]: Set 'LogsConfig' with a 'CloudWatchLogs' or 'S3Logs' configuration.
    }
}

# Parameterized Rules
#
rule check(codebuild_project) {
    %codebuild_project {
    # Scenario 2
    LogsConfig exists
    LogsConfig is_struct

    LogsConfig {
    # Scenario 3
    check_cloudwatch_logs(this) or
    check_s3_logs(this)
    }
    }
}

rule check_cloudwatch_logs(codebuild_project) {
    %codebuild_project {
    # Scenario 4
    CloudWatchLogs exists
    CloudWatchLogs is_struct
    }
}
CloudWatchLogs {
    # Scenario 5, 6, 8 and 10
    Status exists
    Status == "ENABLED"
}
}
}

rule check_s3_logs(codebuild_project) {
    %codebuild_project {
        # Scenario 4
        S3Logs exists
        S3Logs is_struct

        S3Logs {
            # Scenario 4, 6, 9 and 10
            Status exists
            Status == "ENABLED"

            # Scenario 7, 9 and 10
            Location exists
            check_is_string_and_not_empty(Location) or
            check_local_references(%INPUT_DOCUMENT, Location, "AWS::S3::Bucket") or
            check_join_references(%INPUT_DOCUMENT, Location, "AWS::S3::Bucket")
        }
    }
}

rule check_join_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::Join' {
            this is_list
            this not empty
            some this[1][*] {
                check_local_references(%doc, this, %referenced_resource_type)
            }
        }
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
CT.CODEBUILD.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.
PASS Example - Use this template to verify a compliant resource creation.

Resources:
CodeBuildServiceRole:
    Type: AWS::IAM::Role
Properties:
    AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
            - Effect: Allow
              Principal:
                  Service: codebuild.amazonaws.com
              Action: sts:AssumeRole
        Path: /
    Policies:
        - PolicyName: CodeBuildProjectPolicy
          PolicyDocument:
              Version: '2012-10-17'
              Statement:
                  - Effect: Allow
                    Action:
                        - logs:CreateLogGroup
                        - logs:CreateLogStream
                        - logs:PutLogEvents
                    Resource: '***'
CodeBuildProject:
    Type: AWS::CodeBuild::Project
Properties:
    Artifacts:
        Type: NO_ARTIFACTS
    Environment:
        ComputeType: BUILD_GENERAL1_SMALL
        Image: aws/codebuild/standard:4.0
        Type: LINUX_CONTAINER
    ServiceRole:
        Fn::GetAtt:
            - CodeBuildServiceRole
            - Arn
    Source:
        Type: NO_SOURCE
        BuildSpec: |
            version: 0.2
            phases:
install:
  commands:
    - npm install
build:
  commands:
    - npm test
LogsConfig:
  CloudWatchLogs:
    Status: ENABLED

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  CodeBuildServiceRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Principal:
              Service: codebuild.amazonaws.com
            Action: sts:AssumeRole
  CodeBuildProject:
    Type: AWS::CodeBuild::Project
    Properties:
      Artifacts:
        Type: NO_ARTIFACTS
      Environment:
        ComputeType: BUILD_GENERAL1_SMALL
        Image: aws/codebuild/standard:4.0
        Type: LINUX_CONTAINER
      ServiceRole:
        Fn::GetAtt:
        - CodeBuildServiceRole
        - Arn
      Source:
        Type: NO_SOURCE
    BuildSpec: |
[CT.CODEBUILD.PR.4] Require any AWS CodeBuild project to deactivate privileged mode when running

This control checks whether AWS CodeBuild projects have privileged mode turned off.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CodeBuild::Project
- **AWS CloudFormation guard rule:** [CT.CODEBUILD.PR.4 rule specification](#)

### Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CODEBUILD.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CODEBUILD.PR.4 example templates](#)

### Explanation

By default, Docker containers do not allow access to any devices. Privileged mode grants a build project Docker container access to all devices. Setting `privilegedMode` with value `true` enables the Docker daemon to run inside a Docker container. The Docker daemon listens for Docker API...
requests, and it manages Docker objects such as images, containers, networks, and volumes. This parameter should be set to `true` if the build project is intended to build Docker images. Otherwise, this setting should be deactivated, to prevent unintended access to Docker APIs, or to the container's underlying hardware. Unintended access to `privilegedMode` may expose your system to risk of malicious tampering, or deletion of critical resources.

**Remediation for rule failure**

Within `Environment`, set `PrivilegedMode` to `false` or omit the `PrivilegedMode` property.

The examples that follow show how to implement this remediation.

**AWS CodeBuild Project - Example One**

AWS CodeBuild project configured to deactivate privileged mode, by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "CodeBuildProject": {
        "Type": "AWS::CodeBuild::Project",
        "Properties": {
            "Environment": {
                "ComputeType": "BUILD_GENERAL1_SMALL",
                "Image": "aws/codebuild/standard:4.0",
                "Type": "LINUX_CONTAINER"
            },
            "ServiceRole": {
                "Fn::GetAtt": [
                    "CodeBuildServiceRole",
                    " Arn"
                ]
            },
            "Source": {
                "Type": "NO_SOURCE",
                "BuildSpec": "version: 0.2
phases:
  install:
    commands:
    - npm install
  build:
    commands:
      - npm test
artifacts:
  files:
    - **/*"
            }"n
        }
    }
}
```
YAML example

```
CodeBuildProject:
  Type: AWS::CodeBuild::Project
Properties:
  Environment:
    ComputeType: BUILD_GENERAL1_SMALL
    Image: aws/codebuild/standard:4.0
    Type: LINUX_CONTAINER
  ServiceRole: !GetAtt 'CodeBuildServiceRole.Arn'
  Source:
    Type: NO_SOURCE
  BuildSpec: |
    version: 0.2
    phases:
      install:
        commands:
          - npm install
      build:
        commands:
          - npm test
  artifacts:
    files:
      - '**/*'
```

The examples that follow show how to implement this remediation.

**AWS CodeBuild Project - Example Two**

AWS CodeBuild project configured to deactivate privileged mode, by means of the `PrivilegedMode` property. The example is shown in JSON and in YAML.

**JSON example**

```
{
  "CodeBuildProject": {
```
"Type": "AWS::CodeBuild::Project",
"Properties": {
    "Environment": {
        "ComputeType": "BUILD_GENERAL1_SMALL",
        "Image": "aws/codebuild/standard:4.0",
        "Type": "LINUX_CONTAINER",
        "PrivilegedMode": false
    },
    "ServiceRole": {
        "Fn::GetAtt": [
            "CodeBuildServiceRole",
            "Arn"
        ]
    },
    "Source": {
        "Type": "NO_SOURCE",
        "BuildSpec": "version: 0.2
        phases:
        install:
        - npm install
        build:
        - npm test
        artifacts:
        files: '**/*'
    }
}

YAML example

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
      PrivilegedMode: false
    ServiceRole: !GetAtt 'CodeBuildServiceRole.Arn'
  Source:
    Type: NO_SOURCE
    BuildSpec: |
    version: 0.2
    phases:
commands:
- npm install
build:
commands:
- npm test
artifacts:
files:
- '**/*'

CT.CODEBUILD.PR.4 rule specification

# ###################################
##       Rule Specification        ##
#####################################

# Rule Identifier:
#   codebuild_project_environment_privileged_check
#
# Description:
#   This control checks whether AWS CodeBuild projects have privileged mode turned off.
#
# Reports on:
#   AWS::CodeBuild::Project
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any CodeBuild project resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a CodeBuild project resource
# And: 'Environment' configuration is not provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CodeBuild project resource
# And: 'Environment' configuration is provided
# And: 'PrivilegedMode' within the 'Environment' configuration is provided and
# set to bool(true)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CodeBuild project resource
# And: 'Environment' configuration is provided
# And: 'PrivilegedMode' within 'Environment' configuration is not provided
# Then: PASS
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a CodeBuild project resource
# And: 'Environment' configuration is provided
# And: 'PrivilegedMode' within 'Environment' configuration is set to bool(false)
# Then: PASS

# Constants
#
let CODEBUILD_PROJECT_TYPE = "AWS::CodeBuild::Project"
let INPUT_DOCUMENT = this

# Assignments
#
let codebuild_projects = Resources.*[ Type == %CODEBUILD_PROJECT_TYPE ]

# Primary Rules
#
rule codebuild_project_environment_privileged_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %codebuild_projects not empty
{
  check(%codebuild_projects.Properties)
<<

[CT.CODEBUILD.PR.4]: Require any AWS CodeBuild project to deactivate privileged mode when running

[FIX]: Within 'Environment', set 'PrivilegedMode' to 'false' or omit the 'PrivilegedMode' property.

>>

rule codebuild_project_environment_privileged_check when is_cfn_hook(%INPUT_DOCUMENT, %CODEBUILD_PROJECT_TYPE) {
  check(%INPUT_DOCUMENT.%CODEBUILD_PROJECT_TYPE.resourceProperties)

  [CT.CODEBUILD.PR.4]: Require any AWS CodeBuild project to deactivate privileged mode when running

  [FIX]: Within 'Environment', set 'PrivilegedMode' to 'false' or omit the 'PrivilegedMode' property.

  >>

}

#
# Parameterized Rules
#
rule check(codebuild_project) {
  %codebuild_project {
    # Scenario 2
    Environment exists
    Environment is_struct
    Environment {
      # Scenario 4
      PrivilegedMode not exists or
      # Scenario 3 and 5
      PrivilegedMode == false
    }
  }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
CT.CODEBUILD.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  CodeBuildServiceRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
        - Effect: Allow
          Principal:
            Service: codebuild.amazonaws.com
          Action: sts:AssumeRole
  CodeBuildProject:
    Type: AWS::CodeBuild::Project
    Properties:
      Artifacts:
        Type: NO_ARTIFACTS
      Environment:
        ComputeType: BUILD_GENERAL1_SMALL
        Image: aws/codebuild/standard:4.0
        Type: LINUX_CONTAINER
      ServiceRole:
        Fn::GetAtt:
        - CodeBuildServiceRole
        - Arn
      Source:
        Type: NO_SOURCE
    BuildSpec: |
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
CodeBuildServiceRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        Effect: Allow
        Principal:
          Service: codebuild.amazonaws.com
        Action: sts:AssumeRole

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Artifacts:
      Type: NO_ARTIFACTS
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
      PrivilegedMode: true
    ServiceRole:
      Fn::GetAtt:
      - CodeBuildServiceRole
      - Arn
[CT.CODEBUILD.PR.5] Require encryption on all AWS CodeBuild project artifacts

This control checks whether AWS CodeBuild projects are configured to encrypt artifacts.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** `AWS::CodeBuild::Project`
- **AWS CloudFormation guard rule:** [CT.CODEBUILD.PR.5 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CODEBUILD.PR.5 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CODEBUILD.PR.5 example templates](#)

Explanation

Encryption of data at rest is a recommended best practice. It adds a layer of access management around your data. In case of a compromise to your CodeBuild artifacts, encryption at rest ensures that your data is protected from unintended access.
Usage considerations

- This control applies only to AWS CodeBuild projects configured to return primary or secondary artifacts as output.

Remediation for rule failure

Set the EncryptionDisabled property in Artifacts and any SecondaryArtifacts to false, or omit the EncryptionDisabled property.

The examples that follow show how to implement this remediation.

AWS CodeBuild Project - Example One

AWS CodeBuild project configured to return primary artifacts as output with artifact encryption enabled, by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.

JSON example

```json
{
   "CodeBuildProject": {
      "Type": "AWS::CodeBuild::Project",
      "Properties": {
         "Environment": {
            "ComputeType": "BUILD_GENERAL1_SMALL",
            "Image": "aws/codebuild/standard:4.0",
            "Type": "LINUX_CONTAINER"
         },
         "ServiceRole": {
            "Fn::GetAtt": [
               "CodeBuildServiceRole",
               "Arn"
            ]
         },
         "Source": {
            "Type": "NO_SOURCE",
            "BuildSpec": "version: 0.2
         phases:
           install:
             commands:
             - npm install
           build:
             commands:
             - npm test
         artifacts:
           files:
             - **/*"
         }
   }
}
```
YAML example

```yaml
CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
    ServiceRole: !GetAtt 'CodeBuildServiceRole.Arn'
    Source:
      Type: NO_SOURCE
    BuildSpec: |
      version: 0.2
      phases:
        install:
          commands:
            - npm install
        build:
          commands:
            - npm test
        artifacts:
          files:
            - '**/*'
    Artifacts:
      Type: S3
      Location: !Ref 'S3Bucket'
```

The examples that follow show how to implement this remediation.
AWS CodeBuild Project - Example Two

AWS CodeBuild project configured to return primary and secondary artifacts as output with artifact encryption enabled, by means of the EncryptionDisabled property. The example is shown in JSON and in YAML.

JSON example

```json
{
    "CodeBuildProject": {
        "Type": "AWS::CodeBuild::Project",
        "Properties": {
            "Environment": {
                "ComputeType": "BUILD_GENERAL1_SMALL",
                "Image": "aws/codebuild/standard:4.0",
                "Type": "LINUX_CONTAINER"
            },
            "ServiceRole": {
                "Fn::GetAtt": [
                    "CodeBuildServiceRole",
                    "Arn"
                ]
            },
            "Source": {
                "Type": "NO_SOURCE",
                "BuildSpec": "version: 0.2
                phases:
                install:
                commands:
                - npm install
                build:
                commands:
                - npm test
                artifacts:
                files:
                - '**/*'
                secondary-artifacts:
                secondaryArtifact:
                files:
                - 'directory/file1'
            },
            "Artifacts": {
                "Type": "S3",
                "EncryptionDisabled": false,
                "Location": {
                    "Ref": "S3Bucket"
                }
            },
            "SecondaryArtifacts": [
                {
                    "Type": "S3",
                    "EncryptionDisabled": false,
                    "ArtifactIdentifier": "secondaryArtifact",
```
YAML example

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
    ServiceRole: !GetAtt 'CodeBuildServiceRole.Arn'
    Source:
      Type: NO_SOURCE
    BuildSpec:
      version: 0.2
      phases:
        install:
          commands:
            - npm install
        build:
          commands:
            - npm test
        artifacts:
          files:
            - '**/*'
          secondary-artifacts:
            secondaryArtifact:
              files:
                - 'directory/file1'
    Artifacts:
      Type: S3
      EncryptionDisabled: false
      Location: !Ref 'S3Bucket'
SecondaryArtifacts:
  - Type: S3
    EncryptionDisabled: false
    ArtifactIdentifier: secondaryArtifact
    Location: !Ref 'S3Bucket'

CT.CODEBUILD.PR.5 rule specification

# #####################################################################
##       Rule Specification        ##
#####################################################################
#
# Rule Identifier:  
#   codebuild_project_artifact_encryption_check
#
# Description:  
#   This control checks whether AWS CodeBuild projects are configured to encrypt artifacts.
#
# Reports on:  
#   AWS::CodeBuild::Project
#
# Evaluates:  
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:  
#   None
#
# Scenarios:  
#   Scenario 1:  
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any CodeBuild project resources
#     Then: SKIP
#   Scenario 2:  
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a CodeBuild project resource
#     And: 'Artifacts' configuration is provided and is of 'Type' 'NO_ARTIFACTS'
And: 'SecondaryArtifacts' configuration is not provided or provided with an empty list
Then: SKIP

Scenario 3:
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CodeBuild project resource
And: 'Artifacts' configuration is provided and is of 'Type' 'NO_ARTIFACTS'
And: 'SecondaryArtifacts' configuration is provided as a non-empty list
And: All 'SecondaryArtifacts' entries have 'Type' set to 'NO_ARTIFACTS'
Then: SKIP

Scenario 4:
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CodeBuild project resource
And: 'Artifacts' configuration is provided and is not of 'Type' 'NO_ARTIFACTS'
And: 'EncryptionDisabled' within 'Artifacts' configuration is provided and set to bool(true)
Then: FAIL

Scenario 5:
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CodeBuild project resource
And: 'SecondaryArtifacts' configuration is provided
And: There exists one or more items in 'SecondaryArtifacts' which have 'EncryptionDisabled' set to bool(true)
Then: FAIL

Scenario 6:
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CodeBuild project resource
And: 'Artifacts.EncryptionDisabled' is not provided, or is set to bool(false)
And: There exists no item in 'SecondaryArtifacts' which has 'EncryptionDisabled' set to bool(true)
Then: PASS

# Constants
#
let CODEBUILD_PROJECT_TYPE = "AWS::CodeBuild::Project"
let INPUT_DOCUMENT = this

# Assignments
# let codebuild_project = Resources.*[ Type == %CODEBUILD_PROJECT_TYPE ]

# Primary Rules
#
rule codebuild_project_artifact_encryption_check when is_cfn_template(%INPUT_DOCUMENT)
%codebuild_project not empty {
    check(%codebuild_project.Properties)
    <<
    [CT.CODEBUILD.PR.5]: Require encryption on all AWS CodeBuild project artifacts
    [FIX]: Set the 'EncryptionDisabled' property in 'Artifacts' and any
    'SecondaryArtifacts' to 'false', or omit the 'EncryptionDisabled' property.
    >>
}

rule codebuild_project_artifact_encryption_check when is_cfn_hook(%INPUT_DOCUMENT,
%CODEBUILD_PROJECT_TYPE) {
    check(%INPUT_DOCUMENT.%CODEBUILD_PROJECT_TYPE.resourceProperties)
    <<
    [CT.CODEBUILD.PR.5]: Require encryption on all AWS CodeBuild project artifacts
    [FIX]: Set the 'EncryptionDisabled' property in 'Artifacts' and any
    'SecondaryArtifacts' to 'false', or omit the 'EncryptionDisabled' property.
    >>
}

# Parameterized Rules
#
rule check(codebuild_project) {
%codebuild_project [ filter_codebuild_projects(this) ] {
    Artifacts {
    # Scenario 4 and 6
    check_artifact(this)
    }
    # Scenario 5
    SecondaryArtifacts not exists or
    check_secondary_artifacts(this)
}
}

rule check_secondary_artifacts(codebuild_project) {
%codebuild_project {
  SecondaryArtifacts is_list
  SecondaryArtifacts[*] {
    # Scenario 5 and 6
    check_artifact(this)
  }
}

rule check_artifact(artifact) {
  %artifact {
    EncryptionDisabled not exists or
    EncryptionDisabled == false
  }
}

rule filter_codebuild_projects(codebuild_project) {
  %codebuild_project {
    # Scenario 2 and 3
    Artifacts exists
    Artifacts is_struct
    Artifacts {
      filter_artifact(this)
    } or
    filter_secondary_artifacts(this)
  }
}

rule filter_secondary_artifacts(codebuild_project) {
  %codebuild_project {
    # Scenario 2
    SecondaryArtifacts exists
    SecondaryArtifacts is_list
    SecondaryArtifacts not empty
    SecondaryArtifacts[*] {
      # Scenario 3
      filter_artifact(this)
    }
  }
}

rule filter_artifact(artifact) {
  %artifact {
    Type exists
  }
}
CT CODEBUILD PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
CodeBuildServiceRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
    - Effect: Allow
      Principal:
        Service: codebuild.amazonaws.com
      Action: sts:AssumeRole
    Path: /
  Policies:
    - PolicyName: CodeBuildProjectPolicy
      PolicyDocument:
        Version: '2012-10-17'
Statement:
- Effect: Allow
  Action:
  - logs:CreateLogGroup
  - logs:CreateLogStream
  - logs:PutLogEvents
  Resource: '*'
- Effect: Allow
  Action:
  - s3:PutObject
  - s3:GetBucketAcl
  - s3:GetBucketLocation
  Resource:
  - Fn::GetAtt:
    - S3Bucket
    - Arn
  - Fn::Join:
    - ""
    - - Fn::GetAtt:
      - S3Bucket
      - Arn
    - "/*"

S3Bucket:
  Type: AWS::S3::Bucket
  Properties: {}

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
    ServiceRole:
      Fn::GetAtt:
      - CodeBuildServiceRole
      - Arn
    Source:
      Type: NO_SOURCE
      BuildSpec: |
      version: 0.2
      phases:
      install:
        commands:
        - npm install
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
CodeBuildServiceRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
  Statement:
    - Effect: Allow
      Principal:
        Service: codebuild.amazonaws.com
      Action: sts:AssumeRole
    Path: /
  Policies:
    - PolicyName: CodeBuildProjectPolicy
      PolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Action:
              - logs:CreateLogGroup
              - logs:CreateLogStream
              - logs:PutLogEvents
            Resource: '*'
          - Effect: Allow
            Action:
- s3:PutObject
- s3:GetBucketAcl
- s3:GetBucketLocation

Resource:
- Fn::GetAtt:
  - S3Bucket
  - Arn
- Fn::Join:
  - ""
  - Fn::GetAtt:
    - S3Bucket
    - Arn
  - "/*"

S3Bucket:
  Type: AWS::S3::Bucket
  Properties: {}

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
    ServiceRole:
      Fn::GetAtt:
        - CodeBuildServiceRole
        - Arn
    Source:
      Type: NO_SOURCE
    BuildSpec: |
      version: 0.2
      phases:
        install:
          commands:
            - npm install
        build:
          commands:
            - npm test
        artifacts:
          files:
            - '*/**'
    Artifacts:
      Type: S3
      EncryptionDisabled: true
[CT.CODEBUILD.PR.6] Require encryption on all Amazon S3 logs for AWS CodeBuild projects

This control checks whether AWS CodeBuild projects configured with Amazon S3 logs have encryption enabled.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::CodeBuild::Project
- **AWS CloudFormation guard rule:** [CT.CODEBUILD.PR.6 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.CODEBUILD.PR.6 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.CODEBUILD.PR.6 example templates](#)

**Explanation**

Encryption of data at rest is a recommended best practice. It adds a layer of access management around your data. In case of a compromise to your CodeBuild artifacts, encryption at rest ensures that your data is protected from unintended access.

**Usage considerations**

- This control applies only to AWS CodeBuild projects with log delivery to Amazon S3 enabled.
Remediation for rule failure

Set EncryptionDisabled in S3Logs to false, or do not specify the EncryptionDisabled property.

The examples that follow show how to implement this remediation.

AWS CodeBuild Project - Example One

AWS CodeBuild project configured to encrypt logs delivered to an Amazon S3 logging destination, by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.

JSON example

```json
{
   "CodeBuildProject": {
      "Type": "AWS::CodeBuild::Project",
      "Properties": {
         "Artifacts": {
            "Type": "NO_ARTIFACTS"
         },
         "Environment": {
            "ComputeType": "BUILD_GENERAL1_SMALL",
            "Image": "aws/codebuild/standard:4.0",
            "Type": "LINUX_CONTAINER"
         },
         "ServiceRole": {
            "Fn::GetAtt": [
               "CodeBuildServiceRole",
               "Arn"
            ]
         },
         "Source": {
            "Type": "NO_SOURCE",
            "BuildSpec": "version: 0.2
               phases:
                  install:
                     commands:
                        - npm install
                  build:
                     commands:
                        - npm test
                  publish:
                     commands:
                        - npm install
                        - npm build
                        - npm test
                        - npm pack
                        - npm publish
         },
         "LogsConfig": {
            "S3Logs": {
               "Status": "ENABLED",
               "Location": {
                  "Ref": "S3Bucket"
               }
            }
         }
      }
   }
}
```
YAML example

CodeBuildProject:
  Type: AWS::CodeBuild::Project
Properties:
  Artifacts:
    Type: NO_ARTIFACTS
  Environment:
    ComputeType: BUILD_GENERAL1_SMALL
    Image: aws/codebuild/standard:4.0
    Type: LINUX_CONTAINER
  ServiceRole: !GetAtt 'CodeBuildServiceRole.Arn'
  Source:
    Type: NO_SOURCE
  BuildSpec: |
    version: 0.2
    phases:
      install:
        commands:
          - npm install
      build:
        commands:
          - npm test
        artifacts:
          files:
            - '**/*'
  LogsConfig:
    S3Logs:
      Status: ENABLED
      Location: !Ref 'S3Bucket'

The examples that follow show how to implement this remediation.
AWS CodeBuild Project - Example Two

AWS CodeBuild project configured to encrypt logs delivered to an Amazon S3 logging destination, by means of the EncryptionDisabled property. The example is shown in JSON and in YAML.

JSON example

```
{
  "CodeBuildProject": {
    "Type": "AWS::CodeBuild::Project",
    "Properties": {
      "Artifacts": {
        "Type": "NO_ARTIFACTS"
      },
      "Environment": {
        "ComputeType": "BUILD_GENERAL1_SMALL",
        "Image": "aws/codebuild/standard:4.0",
        "Type": "LINUX_CONTAINER"
      },
      "ServiceRole": {
        "Fn::GetAtt": [
          "CodeBuildServiceRole",
          "Arn"
        ]
      },
      "Source": {
        "Type": "NO_SOURCE",
        "BuildSpec": "version: 0.2
          phases:
            install:
              commands:
                - npm install
            build:
              commands:
                - npm test
          artifacts:
            files:
              - '**/*'
        },
        "LogsConfig": {
          "S3Logs": {
            "Status": "ENABLED",
            "Location": {
              "Ref": "S3Bucket"
            },
            "EncryptionDisabled": false
          }
        }
      }
    }
  }
}
```
YAML example

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Artifacts:
      Type: NO_ARTIFACTS
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
    ServiceRole: !GetAtt 'CodeBuildServiceRole.Arn'
  Source:
    Type: NO_SOURCE
  BuildSpec: |
    version: 0.2
    phases:
      install:
        commands:
        - npm install
      build:
        commands:
        - npm test
      artifacts:
        files:
        - '**/*'
  LogsConfig:
    S3Logs:
      Status: ENABLED
      Location: !Ref 'S3Bucket'
      EncryptionDisabled: false

CT.CODEBUILD.PR.6 rule specification

# ###################################################################
## Rule Specification
# ###################################################################
# Rule Identifier:
# codebuild_project_s3_logs_encrypted_check
#
# Description:
# This control checks whether AWS CodeBuild projects configured with Amazon S3 logs have encryption enabled.
#
# Reports on:
# AWS::CodeBuild::Project
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario 1:
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any CodeBuild project resources
# Then: SKIP
# Scenario 2:
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CodeBuild project resource
# And: 'S3Logs' in 'LogsConfig' configuration is not provided
# Then: SKIP
# Scenario 3:
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CodeBuild project resource
# And: 'S3Logs' in 'LogsConfig' configuration is provided and its 'Status' is set to 'DISABLED'
# Then: SKIP
# Scenario 4:
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a CodeBuild project resource
# And: 'S3Logs' in 'LogsConfig' configuration is provided and its 'Status' is set to 'ENABLED'
# And: 'EncryptionDisabled' within 'S3Logs' is provided and set to bool(true)
# Then: FAIL
Scenario 5:
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CodeBuild project resource
And: 'S3Logs' in 'LogsConfig' configuration is provided and its 'Status' is set to 'ENABLED'
And: 'EncryptionDisabled' within 'S3Logs' is not provided
Then: PASS

Scenario 6:
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a CodeBuild project resource
And: 'S3Logs' in 'LogsConfig' configuration is provided and its 'Status' is set to 'ENABLED'
And: 'EncryptionDisabled' within 'S3Logs' is provided and set to bool(false)
Then: PASS

# Constants
let CODEBUILD_PROJECT_TYPE = "AWS::CodeBuild::Project"
let INPUT_DOCUMENT = this

# Assignments
let codebuild_project = Resources.*[ Type == %CODEBUILD_PROJECT_TYPE ]

# Primary Rules
rule codebuild_project_s3_logs_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
    %codebuild_project not empty {
        check(%codebuild_project.Properties)
        %codebuild_project not empty {
            [CT.CODEBUILD.PR.6]: Require encryption on all Amazon S3 logs for AWS CodeBuild projects
            [FIX]: Set 'EncryptionDisabled' in 'S3Logs' to 'false', or do not specify the 'EncryptionDisabled' property.
        }
    }
rule codebuild_project_s3_logs_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %CODEBUILD_PROJECT_TYPE) {

check(%INPUT_DOCUMENT.%CODEBUILD_PROJECT_TYPE.resourceProperties)
<<
[CT.CODEBUILD.PR.6]: Require encryption on all Amazon S3 logs for AWS CodeBuild projects
   [FIX]: Set 'EncryptionDisabled' in 'S3Logs' to 'false', or do not specify the 'EncryptionDisabled' property.
>>

# Parameterized Rules
#
rule check(codebuild_project) {
   %codebuild_project [
   # Scenario 2 and 3
   filter_codebuild_projects(this)
   ] {
      LogsConfig {
         S3Logs {
            # Scenario 5
            EncryptionDisabled not exists or
            # Scenario 4 and 6
            EncryptionDisabled == false
         }
      }
   }
}

rule filter_codebuild_projects(codebuild_project) {
   %codebuild_project {
      LogsConfig exists
      LogsConfig is_struct
      LogsConfig {
         # Scenario 2 and 3
         S3Logs exists
         S3Logs is_struct
         S3Logs {
            Status exists
            # Scenario 3 and 4
            Status == "ENABLED"
         }
      }
   }
}
## Utility Rules

```plaintext
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or 
        Resources exists 
    } 
}
```

```plaintext
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists 
}
```

### CT.CODEBUILD.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

```plaintext
Resources:
CodeBuildServiceRole:
    Type: AWS::IAM::Role
Properties:
    AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
            - Effect: Allow
              Principal:
                Service: codebuild.amazonaws.com
              Action: sts:AssumeRole
        Path: /
    Policies:
        - PolicyName: CodeBuildProjectPolicy
          PolicyDocument:
              Version: '2012-10-17'
              Statement:
                  - Effect: Allow
                    Action:
```
- logs:CreateLogGroup
- logs:CreateLogStream
- logs:PutLogEvents
  Resource: '*'
- Effect: Allow
  Action:
  - s3:PutObject
  - s3:GetBucketAcl
  - s3:GetBucketLocation
  Resource:
    - Fn::GetAtt:
      - S3Bucket
      - Arn
    - Fn::Join:
      - ""
      - - Fn::GetAtt:
        - S3Bucket
        - Arn
        - "/*"

S3Bucket:
  Type: AWS::S3::Bucket
  Properties: {}

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Artifacts:
      Type: NO_ARTIFACTS
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
    ServiceRole:
      Fn::GetAtt:
        - CodeBuildServiceRole
        - Arn
    Source:
      Type: NO_SOURCE
    BuildSpec: |
      version: 0.2
      phases:
        install:
          commands:
            - npm install
        build:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
CodeBuildServiceRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          Service: codebuild.amazonaws.com
        Action: sts:AssumeRole
    Path: /
    Policies:
      - PolicyName: CodeBuildProjectPolicy
        PolicyDocument:
          Version: '2012-10-17'
          Statement:
            - Effect: Allow
              Action:
                - logs:CreateLogGroup
                - logs:CreateLogStream
                - logs:PutLogEvents
              Resource: '*'
            - Effect: Allow
              Action:
                - s3:PutObject
- s3:GetBucketAcl
- s3:GetBucketLocation

Resource:
- Fn::GetAtt:
  - S3Bucket
  - Arn
- Fn::Join:
  - ""
    - - Fn::GetAtt:
      - S3Bucket
      - Arn
    - "/*"

S3Bucket:
  Type: AWS::S3::Bucket
  Properties: {}

CodeBuildProject:
  Type: AWS::CodeBuild::Project
  Properties:
    Artifacts:
      Type: NO_ARTIFACTS
    Environment:
      ComputeType: BUILD_GENERAL1_SMALL
      Image: aws/codebuild/standard:4.0
      Type: LINUX_CONTAINER
    ServiceRole:
      Fn::GetAtt:
        - CodeBuildServiceRole
        - Arn
    Source:
      Type: NO_SOURCE
    BuildSpec: |
      version: 0.2
      phases:
        install:
          commands:
            - npm install
        build:
          commands:
            - npm test
          files:
            - '**/*'
    LogsConfig:
      S3Logs:
AWS Database Migration Service (AWS DMS) controls

Topics

- [CT.DMS.PR.1] Require that a public AWS DMS replication instance is not public
- [CT.DMS.PR.2] Require an AWS Database Migration Service (DMS) Endpoint to encrypt connections for source and target endpoints

[CT.DMS.PR.1] Require that a public AWS DMS replication instance is not public

This control checks whether your AWS DMS replication instance is public.

- Control objective: Limit network access, Enforce least privilege
- Implementation: AWS CloudFormation Guard Rule
- Control behavior: Proactive
- Resource types: AWS::DMS::ReplicationInstance
- AWS CloudFormation guard rule: [CT.DMS.PR.1 rule specification]

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.DMS.PR.1 rule specification]
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.DMS.PR.1 example templates]

Explanation

A private replication instance has a private IP address that you cannot access outside of the replication network. You use a private instance when both source and target databases are in the same network that is connected to the replication instance's VPC. The network can be connected to the VPC by using a VPN, AWS Direct Connect, or VPC peering.
Remediation for rule failure

Set PubliclyAccessible to false.

The examples that follow show how to implement this remediation.

AWS DMS Replication Instance - Example

AWS DMS replication instance configured with public access disabled. The example is shown in JSON and in YAML.

JSON example

```json
{
    "DMSReplicationInstance": {
        "Type": "AWS::DMS::ReplicationInstance",
        "Properties": {
            "ReplicationInstanceClass": "dms.t3.micro",
            "PubliclyAccessible": false
        }
    }
}
```

YAML example

```yaml
DMSReplicationInstance:
  Type: AWS::DMS::ReplicationInstance
  Properties:
    ReplicationInstanceClass: dms.t3.micro
    PubliclyAccessible: false
```

CT.DMS.PR.1 rule specification

```text
# #################################################################
##       Rule Specification        ##
# #################################################################
# Rule Identifier:
```
# dms_replication_instance_not_public_check
#
# Description:
#   This control checks whether your AWS DMS replication instance is public.
#
# Reports on:
#   AWS::DMS::ReplicationInstance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any AWS DMS replication instance resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a AWS DMS replication instance resource
#     And: 'PubliclyAccessible' is not present on the AWS DMS replication instance
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a AWS DMS replication instance resource
#     And: 'PubliclyAccessible' is present on the AWS DMS replication instance and is set to bool(true)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a AWS DMS replication instance resource
#     And: 'PubliclyAccessible' is present on the AWS DMS replication instance and is set to bool(false)
#     Then: PASS

# Constants
let DMS_REPLICATION_INSTANCE_TYPE = "AWS::DMS::ReplicationInstance"
let INPUT_DOCUMENT = this

# Assignments

let dms_replication_instances = Resources.*[ Type == %DMS_REPLICATION_INSTANCE_TYPE ]

# Primary Rules

rule dms_replication_instance_not_public_check when is_cfn_template(%INPUT_DOCUMENT)
    %dms_replication_instances not empty {
        check(%dms_replication_instances.Properties)
        <<
        [CT.DMS.PR.1]: Require that a public AWS DMS replication instance is not public
        [FIX]: Set 'PubliclyAccessible' to 'false'.
        >>
    }

rule dms_replication_instance_not_public_check when is_cfn_hook(%INPUT_DOCUMENT, %DMS_REPLICATION_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%DMS_REPLICATION_INSTANCE_TYPE.resourceProperties)
    <<
    [CT.DMS.PR.1]: Require that a public AWS DMS replication instance is not public
    [FIX]: Set 'PubliclyAccessible' to 'false'.
    >>
}

# Parameterized Rules

rule check(dms_replication_instances) {
    %dms_replication_instances {
        # Scenario 2
        PubliclyAccessible exists
        # Scenario 3 and 4
        PubliclyAccessible == false
    }
}

#
# Utility Rules

```
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

**CT.DMS.PR.1 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

```
Resources:
  DMSReplicationInstance:
    Type: AWS::DMS::ReplicationInstance
    Properties:
      ReplicationInstanceClass: dms.t3.micro
      PubliclyAccessible: false
```

**FAIL Example** - Use this template to verify that the control prevents non-compliant resource creation.

```
Resources:
  DMSReplicationInstance:
    Type: AWS::DMS::ReplicationInstance
    Properties:
      ReplicationInstanceClass: dms.t3.micro
      PubliclyAccessible: true
```
[CT.DMS.PR.2] Require an AWS Database Migration Service (DMS) Endpoint to encrypt connections for source and target endpoints

This control checks whether an AWS Database Migration Service (AWS DMS) Endpoint is configured to encrypt connections for source and target endpoints by using Secure Sockets Layer (SSL).

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::DMS::Endpoint
- **AWS CloudFormation guard rule:** [CT.DMS.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.DMS.PR.2 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.DMS.PR.2 example templates](#)

**Explanation**

You can encrypt connections for source and target endpoints by using Secure Sockets Layer (SSL). By enabling encryption in-transit with SSL, you can protect the confidentiality of data during AWS DMS data migrations.

**Usage considerations**

- This control applies only to AWS DMS endpoints with an EngineName property of mysql, oracle, postgres, mariadb, aurora, aurora-postgresql, db2, sybase, mongodb, docdb, or sqlserver.
- Not all SSL modes work with all database endpoints. See [Using SSL with AWS Database Migration Service](#) in the *AWS Database Migration Service User Guide* for information on which SSL modes are supported for each database engine, and limitations of using SSL with AWS DMS.
Remediation for rule failure

Set the value of the SslMode property to a supported encryption mode for the endpoint engine (one of require, verify-ca, or verify-full).

The examples that follow show how to implement this remediation.

AWS DMS Endpoint - Example

An AWS DMS endpoint configured with a postgres database target and connection encryption using SSL (TLS). The example is shown in JSON and in YAML.

JSON example

```
{
  "Endpoint": {
    "Type": "AWS::DMS::Endpoint",
    "Properties": {
      "DatabaseName": "sample-db",
      "EndpointType": "target",
      "Username": {
        "Fn::Sub": "{{resolve:secretsmanager:${DMSEndpointSecret}::username}}"
      },
      "Password": {
        "Fn::Sub": "{{resolve:secretsmanager:${DMSEndpointSecret}::password}}"
      },
      "Port": 1234,
      "ServerName": "server.db.example.com",
      "EngineName": "postgres",
      "SslMode": "require"
    }
  }
}
```

YAML example

```
Endpoint:
  Type: AWS::DMS::Endpoint
  Properties:
    DatabaseName: sample-db
```
EndpointType: target
Username: !Sub '{{resolve:secretsmanager:${DMSEndpointSecret}::username}}'
Password: !Sub '{{resolve:secretsmanager:${DMSEndpointSecret}::password}}'
Port: 1234
ServerName: server.db.example.com
EngineName: postgres
SslMode: require

CT.DMS.PR.2 rule specification

# #################################################################
##       Rule Specification        ##
# #################################################################
#
# Rule Identifier:
#   dms_endpoint_ssl_configured_check
#
# Description:
#   This control checks whether an AWS Database Migration Service (AWS DMS) Endpoint is
#   configured to encrypt connections for source and target endpoints by using
#   Secure Sockets Layer (SSL).
#
# Reports on:
#   AWS::DMS::Endpoint
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any AWS DMS endpoint resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a AWS DMS endpoint resource
# And: 'EngineName' has been set to an engine other than an engine that supports configuration of SSL connections via 'SslMode' (values other than 'mysql', 'oracle', 'postgres', 'mariadb', 'aurora', 'aurora-postgresql', 'db2', 'sybase', 'mongodb', 'docdb', 'sqlserver')
# Then: SKIP

# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a AWS DMS endpoint resource
# And: 'EngineName' has been set to an engine that supports configuration of SSL connections via 'SslMode'
# ('mysql', 'oracle', 'postgres', 'mariadb', 'aurora', 'aurora-postgresql', 'db2', 'sybase', 'mongodb', 'docdb', 'sqlserver')
# And: 'SslMode' has not been provided
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a AWS DMS endpoint resource
# And: 'EngineName' has been set to an engine that supports configuration of SSL connections via 'SslMode'
# ('mysql', 'oracle', 'postgres', 'mariadb', 'aurora', 'aurora-postgresql', 'db2', 'sybase', 'mongodb', 'docdb', 'sqlserver')
# And: 'SslMode' has been provided and set to a value other than 'require', 'verify-ca' or 'verify-full'
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a AWS DMS endpoint resource
# And: 'EngineName' has been set to an engine that supports configuration of SSL connections via 'SslMode'
# ('mysql', 'oracle', 'postgres', 'mariadb', 'aurora', 'aurora-postgresql', 'db2', 'sybase', 'mongodb', 'docdb', 'sqlserver')
# And: 'SslMode' has been provided and set to 'require', 'verify-ca' or 'verify-full'
# Then: PASS

# # Constants

Proactive controls
let INPUT_DOCUMENT = this
let DMS_ENDPOINT_TYPE = "AWS::DMS::Endpoint"
let DMS_ENGINE_NAMES_WITH_SSL_SUPPORT = [
    "mysql",
    "oracle",
    "postgres",
    "mariadb",
    "aurora",
    "aurora-postgresql",
    "db2",
    "sybase",
    "mongodb",
    "docdb",
    "sqlserver"
]
let ALLOWED_DMS_SSL_MODES = [
    "require",
    "verify-ca",
    "verify-full"
]

# Assignments
#
let dms_endpoints = Resources.*[ Type == %DMS_ENDPOINT_TYPE ]

# Primary Rules
#
rule dms_endpoint_ssl_configured_check when is_cfn_template(%INPUT_DOCUMENT) {
    %dms_endpoints not empty {
        check(%dms_endpoints.Properties)
        <<
        [CT.DMS.PR.2]: Require an AWS Database Migration Service (AWS DMS) Endpoint to encrypt connections for source and target endpoints
        [FIX]: Set the value of the SslMode property to a supported encryption mode for the endpoint engine (one of require, verify-ca, or verify-full).
        >>
    }
}

rule dms_endpoint_ssl_configured_check when is_cfn_hook(%INPUT_DOCUMENT, %DMS_ENDPOINT_TYPE) {
    check(%INPUT_DOCUMENT.%DMS_ENDPOINT_TYPE.resourceProperties)
    <<
[CT.DMS.PR.2]: Require an AWS Database Migration Service (AWS DMS) Endpoint to encrypt connections for source and target endpoints

[FIX]: Set the value of the SslMode property to a supported encryption mode for the endpoint engine (one of require, verify-ca, or verify-full).

```
}
```

# Parameterized Rules

rule check(dms_endpoint) {
  %dms_endpoint [
    # Scenario 2
    EngineName exists
    EngineName in %DMS_ENGINE_NAMES_WITH_SSL_SUPPORT
  ] {
    # Scenario 3
    SslMode exists
    # Scenarios 4 and 5
    SslMode in %ALLOWED_DMS_SSL_MODES
  }
}

# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.DMS.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.
PASS Example - Use this template to verify a compliant resource creation.

Resources:
DMSEndpointSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Example DMS endpoint secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "exampleuser"}'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: '@\;+%{},'

Endpoint:
  Type: AWS::DMS::Endpoint
  Properties:
    DatabaseName: example-db
    EndpointType: target
    Username:
      Fn::Sub: '{{resolve:secretsmanager:${DMSEndpointSecret}::username}}'
    Password:
      Fn::Sub: '{{resolve:secretsmanager:${DMSEndpointSecret}::password}}'
    Port: 1234
    ServerName: server.db.example.com
    EngineName: postgres
    SslMode: require

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DMSEndpointSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Example DMS endpoint secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "exampleuser"}'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: '@\;+%{},'
Amazon DocumentDB controls

Topics

• [CT.DOCUMENTDB.PR.1] Require an Amazon DocumentDB cluster to be encrypted at rest

• [CT.DOCUMENTDB.PR.2] Require an Amazon DocumentDB cluster to have a backup retention period greater than or equal to seven days

[CT.DOCUMENTDB.PR.1] Require an Amazon DocumentDB cluster to be encrypted at rest

This control checks whether storage encryption is enabled for an Amazon DocumentDB (with MongoDB compatibility) cluster.

• **Control objective:** Encrypt data at rest

• **Implementation:** AWS CloudFormation guard rule

• **Control behavior:** Proactive

• **Resource types:** AWS::DocDB::DBCluster

• **AWS CloudFormation guard rule:** [CT.DOCUMENTDB.PR.1 rule specification]

Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.DOCUMENTDB.PR.1 rule specification]
For examples of PASS and FAIL CloudFormation templates related to this control, see: 
CT.DOCUMENTDB.PR.1 example templates

Explanation

You encrypt data at rest in your Amazon DocumentDB cluster by specifying the storage encryption option when you create your cluster. Storage encryption is enabled cluster-wide, and it is applied to all instances, including the primary instance and any replicas. It also is applied to your cluster's storage volume, data, indexes, logs, automated backups, and snapshots.

Clusters that you create using AWS CloudFormation have encryption at rest turned off by default. Therefore, you must explicitly enable encryption at rest using the StorageEncrypted property.

Remediation for rule failure

Set the value of the StorageEncrypted parameter to true.

The examples that follow show how to implement this remediation.

Amazon DocumentDB Cluster - Example

An Amazon DocumentDB cluster configured with storage encryption enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
   "DocumentDBCluster": {
       "Type": "AWS::DocDB::DBCluster",
       "Properties": {
           "MasterUsername": {
               "Fn::Sub": "{{resolve:secretsmanager: ${DocumentDBClusterSecret}::username}}"
           },
           "MasterUserPassword": {
               "Fn::Sub": "{{resolve:secretsmanager: ${DocumentDBClusterSecret}::password}}"
           },
           "StorageEncrypted": true
       }
   }
}
```
**YAML example**

```
DocumentDBCluster:
  Type: AWS::DocDB::DBCluster
  Properties:
    MasterUsername: !Sub '{{resolve:secretsmanager:${DocumentDBClusterSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DocumentDBClusterSecret}::password}}'
    StorageEncrypted: true
```

**CT.DOCUMENTDB.PR.1 rule specification**

```
# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   docdb_cluster_encrypted_check
#
# Description:
#   This control checks whether storage encryption is enabled for an Amazon DocumentDB
#   (with MongoDB compatibility) cluster.
#
# Reports on:
#   AWS::DocDB::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
```
# And: The input document does not contain any Document DB cluster resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Document DB cluster resource
# And: 'StorageEncrypted' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Document DB cluster resource
# And: 'StorageEncrypted' has been provided and set to a value other than
# bool(true)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Document DB cluster resource
# And: 'StorageEncrypted' has been provided and set to bool(true)
# Then: PASS

# Constants
#
let DOCUMENT_DB_CLUSTER_TYPE = "AWS::DocDB::DBCluster"
let INPUT_DOCUMENT = this

# Assignments
#
let document_db_clusters = Resources.*[ Type == %DOCUMENT_DB_CLUSTER_TYPE ]

# Primary Rules
#
rule docdb_cluster_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
%document_db_clusters not empty { 
  check(%document_db_clusters.Properties)
    <<
    [CT.DOCUMENTDB.PR.1]: Require an Amazon DocumentDB cluster to be encrypted at
    rest
    [FIX]: Set the value of the 'StorageEncrypted' parameter to true.
  >>
}
rule docdb_cluster_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %DOCUMENT_DB_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%DOCUMENT_DB_CLUSTER_TYPE.resourceProperties)
    <<
    [CT.DOCUMENTDB.PR.1]: Require an Amazon DocumentDB cluster to be encrypted at rest
    [FIX]: Set the value of the 'StorageEncrypted' parameter to true.
    >>
}

# Parameterized Rules

rule check(document_db_cluster) {
    %document_db_cluster {
        # Scenario 2
        StorageEncrypted exists
        # Scenarios 3 and 4
        StorageEncrypted == true
    }
}

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.DOCUMENTDB.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
DocumentDBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    GenerateSecretString:
      SecretStringTemplate: '{"username": "exampleuser"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: "@/\\
DocumentDBCluster:
  Type: AWS::DocDB::DBCluster
  Properties:
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${DocumentDBClusterSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${DocumentDBClusterSecret}::password}}'
    StorageEncrypted: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DocumentDBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    GenerateSecretString:
      SecretStringTemplate: '{"username": "exampleuser"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: "@/\\
DocumentDBCluster:
  Type: AWS::DocDB::DBCluster
Properties:
MasterUsername:
  Fn::Sub: '{{$resolve:secretsmanager:${DocumentDBClusterSecret}::username}}'
MasterUserPassword:
  Fn::Sub: '{{$resolve:secretsmanager:${DocumentDBClusterSecret}::password}}'
StorageEncrypted: false

[CT.DOCUMENTDB.PR.2] Require an Amazon DocumentDB cluster to have a backup retention period greater than or equal to seven days

This control checks whether an Amazon DocumentDB cluster retention period is set to seven or more days (>=7). The default retention period is one day.

- **Control objective:** Improve resiliency
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::DocDB::DBCluster
- **AWS CloudFormation guard rule:** [CT.DOCUMENTDB.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.DOCUMENTDB.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.DOCUMENTDB.PR.2 example templates](#)

Explanation

Amazon DocumentDB creates daily automatic snapshots of your cluster during your cluster's backup window. Amazon DocumentDB saves the automatic snapshots of your cluster according to the backup retention period that you specify, allowing you to restore to any point within the backup retention period. This daily snapshot strengthens the resilience of your systems, and it can help you recover quickly from a security incident.
Remediation for rule failure

Set the value of the BackupRetentionPeriod parameter to an integer value between 7 and 35 days (inclusive).

The examples that follow show how to implement this remediation.

**Amazon DocumentDB Cluster - Example**

An Amazon DocumentDB cluster configured with a backup retention period of seven (7) days. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "DocumentDBCluster": {
      "Type": "AWS::DocDB::DBCluster",
      "Properties": {
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:
${DocumentDBClusterSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:
${DocumentDBClusterSecret}::password}}"
         },
         "BackupRetentionPeriod": 7
      }
   }
}
```

**YAML example**

```yaml
DocumentDBCluster:
  Type: AWS::DocDB::DBCluster
  Properties:
    MasterUsername: !Sub '{{resolve:secretsmanager:
${DocumentDBClusterSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:
${DocumentDBClusterSecret}::password}}'
    BackupRetentionPeriod: 7
```
CT.DOCUMENTDB.PR.2 rule specification

# ##################################################################
##       Rule Specification        ##
# ##################################################################
#
# Rule Identifier:
#   docdb_cluster_backup_retention_check
#
# Description:
#   This control checks whether an Amazon DocumentDB cluster retention period is set to
#   seven or more days (>=7).
#
# Reports on:
#   AWS::DocDB::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Document DB cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a Document DB cluster resource
#     And: 'BackupRetentionPeriod' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a Document DB cluster resource
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Document DB cluster resource
# And: 'BackupRetentionPeriod' has been provided and set to an integer value greater than or equal to seven (>=7)
# Then: PASS

# Constants
#
let DOCUMENT_DB_CLUSTER_TYPE = "AWS::DocDB::DBCluster"
let INPUT_DOCUMENT = this

# Assignments
#
let document_db_clusters = Resources.*[ Type == %DOCUMENT_DB_CLUSTER_TYPE ]

# Primary Rules
#
rule docdb_cluster_backup_retention_check when is_cfn_template(%INPUT_DOCUMENT) {
    %document_db_clusters not empty {
        check(%document_db_clusters.Properties)
        <<
        [CT.DOCUMENTDB.PR.2]: Require an Amazon DocumentDB cluster to have automatic backups enabled
        [FIX]: Set the value of the 'BackupRetentionPeriod' parameter to an integer value between 7 and 35 days (inclusive).
        >>
    }
}

rule docdb_cluster_backup_retention_check when is_cfn_hook(%INPUT_DOCUMENT, %DOCUMENT_DB_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%DOCUMENT_DB_CLUSTER_TYPE.resourceProperties)
    <<
    [CT.DOCUMENTDB.PR.2]: Require an Amazon DocumentDB cluster to have automatic backups enabled
    [FIX]: Set the value of the 'BackupRetentionPeriod' parameter to an integer value between 7 and 35 days (inclusive).
# Parameterized Rules

```python
# rule check(document_db_cluster) {
  %document_db_cluster {
    # Scenario 2
    BackupRetentionPeriod exists
    # Scenarios 3 and 4
    BackupRetentionPeriod >= 7
  }
}
```

# Utility Rules

```python
# rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```python
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

### CT.DOCUMENTDB.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

**Resources:**
- DocumentDBClusterSecret:
  - Type: AWS::SecretsManager::Secret
  - Properties:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DocumentDBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    GenerateSecretString:
      SecretStringTemplate: '{"username": "exampleuser"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: '\"@/\'
  DocumentDBCluster:
    Type: AWS::DocDB::DBCluster
    Properties:
      MasterUsername:
        Fn::Sub: '{\{resolve:secretsmanager:{DocumentDBClusterSecret}::username\}}'
      MasterUserPassword:
        Fn::Sub: '{\{resolve:secretsmanager:{DocumentDBClusterSecret}::password\}}'
      BackupRetentionPeriod: 7

Amazon DynamoDB controls

Topics
[CT.DYNAMODB.PR.1] Require that point-in-time recovery for an Amazon DynamoDB table is activated

[CT.DYNAMODB.PR.2] Require an Amazon DynamoDB table to be encrypted at rest using an AWS KMS key

[CT.DYNAMODB.PR.1] Require that point-in-time recovery for an Amazon DynamoDB table is activated

This control checks whether point-in-time recovery (PITR) is enabled for an Amazon DynamoDB table.

- **Control objective:** Improve resiliency
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::DynamoDB::Table
- **AWS CloudFormation guard rule:** [CT.DYNAMODB.PR.1 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.DYNAMODB.PR.1 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.DYNAMODB.PR.1 example templates](#)

**Explanation**

Backups help you to recover more quickly from a security incident. They also strengthen the resilience of your systems. Amazon DynamoDB point-in-time recovery (PITR) automates backups for DynamoDB tables, which can reduce the time required to recover from accidental delete or write operations. DynamoDB tables that have PITR enabled can be restored to any point in time within the last 35 days.

**Remediation for rule failure**

Provide a PointInTimeRecoverySpecification configuration and set PointInTimeRecoveryEnabled to true.
The examples that follow show how to implement this remediation.

Amazon DynamoDB Table - Example

Amazon DynamoDB table configured with point-in-time recovery activated. The example is shown in JSON and in YAML.

JSON example

```json
{
   "DynamoDBTable": {
      "Type": "AWS::DynamoDB::Table",
      "Properties": {
         "AttributeDefinitions": [
            {
               "AttributeName": "PK",
               "AttributeType": "S"
            }
         ],
         "BillingMode": "PAY_PER_REQUEST",
         "KeySchema": [
            {
               "AttributeName": "PK",
               "KeyType": "HASH"
            }
         ],
         "PointInTimeRecoverySpecification": {
            "PointInTimeRecoveryEnabled": true
         }
      }
   }
}
```

YAML example

```yaml
DynamoDBTable:
   Type: AWS::DynamoDB::Table
   Properties:
      AttributeDefinitions:
         - AttributeName: PK
```
```
AttributeType: S
BillingMode: PAY_PER_REQUEST
KeySchema:
  - AttributeName: PK
    KeyType: HASH
PointInTimeRecoverySpecification:
  PointInTimeRecoveryEnabled: true
```

CT.DYNAMODB.PR.1 rule specification

```
# ############################################################################
##       Rule Specification        ##
# ############################################################################

# Rule Identifier:
# dynamodb_table_pitr_enabled_check

# Description:
# This control checks whether point-in-time recovery (PITR) is enabled for an Amazon DynamoDB table.

# Reports on:
# AWS::DynamoDB::Table

# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any DynamoDB table resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain a DynamoDB table resource
```
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

And: The input document does not contain a DynamoDB table resource

And: 'PointInTimeRecoverySpecification' is present on the DynamoDB table resource

And: 'PointInTimeRecoveryEnabled' in 'PointInTimeRecoverySpecification' is missing or is a value other than bool(true)

Then: FAIL

Scenario: 4

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

And: The input document does not contain a DynamoDB table resource

And: 'PointInTimeRecoverySpecification' is present on the DynamoDB table resource

And: 'PointInTimeRecoveryEnabled' in 'PointInTimeRecoverySpecification' is present and set to bool(true)

Then: PASS

# Constants

let DYNAMODB_TABLE_TYPE = "AWS::DynamoDB::Table"
let INPUT_DOCUMENT = this

# Assignments

let dynamodb_tables = Resources.*[ Type == %DYNAMODB_TABLE_TYPE ]

# Primary Rules

rule dynamodb_table_pitr_enabled_check when is_cfn_template(%INPUT_DOCUMENT)

%dynamodb_tables not empty {

check(%dynamodb_tables.Properties)

[CT.DYNAMODB.PR.1]: Require that point-in-time recovery for an Amazon DynamoDB table is activated
[FIX]: Provide a 'PointInTimeRecoverySpecification' configuration and set 'PointInTimeRecoveryEnabled' to 'true'.
>>
}

rule dynamodb_table_pitr_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %DYNAMODB_TABLE_TYPE) {
    check(%INPUT_DOCUMENT.%DYNAMODB_TABLE_TYPE.resourceProperties)
    <=
    [CT.DYNAMODB.PR.1]: Require that point-in-time recovery for an Amazon DynamoDB table is activated
    [FIX]: Provide a 'PointInTimeRecoverySpecification' configuration and set 'PointInTimeRecoveryEnabled' to 'true'.
    >>
}

rule check(dynamodb_table) {
    %dynamodb_table {
        # Scenario 2
        PointInTimeRecoverySpecification exists
        PointInTimeRecoverySpecification is_struct

        # Scenario 3 and 4
        PointInTimeRecoverySpecification {
            PointInTimeRecoveryEnabled exists
            PointInTimeRecoveryEnabled == true
        }
    }
}

# # Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, DYNAMODB_TABLE_TYPE) {
    %doc.%DYNAMODB_TABLE_TYPE.resourceProperties exists
}
**CT.DYNAMODB.PR.1 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example - Use this template to verify a compliant resource creation.**

Resources:
DynamoDBTable:
  Type: AWS::DynamoDB::Table
  Properties:
    AttributeDefinitions:
      - AttributeName: "PK"
        AttributeType: "S"
    BillingMode: "PAY_PER_REQUEST"
    KeySchema:
      - AttributeName: "PK"
        KeyType: "HASH"
    PointInTimeRecoverySpecification:
      PointInTimeRecoveryEnabled: true

**FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.**

Resources:
DynamoDBTable:
  Type: AWS::DynamoDB::Table
  Properties:
    AttributeDefinitions:
      - AttributeName: "PK"
        AttributeType: "S"
    BillingMode: "PAY_PER_REQUEST"
    KeySchema:
      - AttributeName: "PK"
        KeyType: "HASH"
    PointInTimeRecoverySpecification:
      PointInTimeRecoveryEnabled: false
[CT.DYNAMODB.PR.2] Require an Amazon DynamoDB table to be encrypted at rest using an AWS KMS key

This control checks whether your Amazon DynamoDB table is encrypted with an AWS Key Management Service (KMS) key.

- **Control objective**: Encrypt data at rest
- **Implementation**: AWS CloudFormation guard rule
- **Control behavior**: Proactive
- **Resource types**: AWS::DynamoDB::Table
- **AWS CloudFormation guard rule**: [CT.DYNAMODB.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.DYNAMODB.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.DYNAMODB.PR.2 example templates](#)

Explanation

Amazon DynamoDB encryption at rest provides an additional layer of data protection, because it always secures your data in an encrypted table - including its primary key, local and global secondary indexes, streams, global tables, backups, and DynamoDB Accelerator (DAX) clusters, whenever the data is stored in durable media.

Encryption at rest integrates with AWS KMS for managing the encryption keys that are used to encrypt your tables.

**Usage considerations**

- This control requires only that KMS keys are used for server-side encryption. It does not check the properties of the KMS key used, such as whether the KMS key is customer-managed or service-managed.
Remediation for rule failure

Provide a SSESpecification configuration and set SSEEnabled to true.

The examples that follow show how to implement this remediation.

Amazon DynamoDB Table - Example

An Amazon DynamoDB table configured to encrypt data at rest with AWS Key Management Service (KMS) keys. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "DynamoDBTable": {
      "Type": "AWS::DynamoDB::Table",
      "Properties": {
         "AttributeDefinitions": [
            {
               "AttributeName": "PK",
               "AttributeType": "S"
            }
         ],
         "BillingMode": "PAY_PER_REQUEST",
         "KeySchema": [
            {
               "AttributeName": "PK",
               "KeyType": "HASH"
            }
         ],
         "SSESpecification": {
            "SSEEnabled": true
         }
      }
   }
}
```

**YAML example**

```yaml
DynamoDBTable:
```
Type: AWS::DynamoDB::Table
Properties:
  AttributeDefinitions:
    - AttributeName: PK
      AttributeType: S
  BillingMode: PAY_PER_REQUEST
  KeySchema:
    - AttributeName: PK
      KeyType: HASH
  SSESpecification:
    SSEEnabled: true

CT.DYNAMODB.PR.2 rule specification

# #####################################################################
##       Rule Specification        
# #####################################################################
# Rule Identifier:
#  dynamodb_table_encrypted_kms_check
#
# Description:
#  This control checks whether your Amazon DynamoDB table is encrypted with an AWS Key
#  Management Service (KMS) key.
#
# Reports on:
#  AWS::DynamoDB::Table
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#  None
#
# Scenarios:
#  Scenario: 1
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#           document
#    And: The input document does not contain any DynamoDB table resources
#    Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a DynamoDB table resources
# And: 'SSEEnabled' in 'SSESpecification' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a DynamoDB table resources
# And: 'SSEEnabled' in 'SSESpecification' has been provided and set to a value other than bool(true)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a DynamoDB table resources
# And: 'SSEEnabled' in 'SSESpecification' has been provided and set to bool(true)
# Then: PASS

# Constants
#
let DYNAMODB_TABLE_TYPE = "AWS::DynamoDB::Table"
let INPUT_DOCUMENT = this

# Assignments
#
let dynamodb_tables = Resources.*[ Type == %DYNAMODB_TABLE_TYPE ]

# Primary Rules
#
rule dynamodb_table_encrypted_kms_check when is_cfn_template(%INPUT_DOCUMENT) %dynamodb_tables not empty {
    check(%dynamodb_tables.Properties) <<
    [CT.DYNAMODB.PR.2]: Require an Amazon DynamoDB table to be encrypted at rest using an AWS KMS key
    [FIX]: Provide a 'SSESpecification' configuration and set 'SSEEnabled' to 'true'.
    >>
}
rule dynamodb_table_encrypted_kms_check when is_cfn_hook(%INPUT_DOCUMENT, %DYNAMODB_TABLE_TYPE) {
    check(%INPUT_DOCUMENT.%DYNAMODB_TABLE_TYPE.resourceProperties)
    <=
    [CT.DYNAMODB.PR.2]: Require an Amazon DynamoDB table to be encrypted at rest using an AWS KMS key
    [FIX]: Provide a 'SSESpecification' configuration and set 'SSEEnabled' to 'true'.
    >>
}

rule check(dynamodb_table) {
    %dynamodb_table {
        # Scenario 2
        SSESpecification exists
        SSESpecification is_struct

        # Scenarios 3 and 4
        SSESpecification {
            SSEEnabled exists
            SSEEnabled == true
        }
    }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, DYNAMODB_TABLE_TYPE) {
    %doc.%DYNAMODB_TABLE_TYPE.resourceProperties exists
}
CT.DYNAMODB.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
DynamoDBTable:
  Type: AWS::DynamoDB::Table
Properties:
  AttributeDefinitions:
    - AttributeName: PK
      AttributeType: S
  BillingMode: PAY_PER_REQUEST
  KeySchema:
    - AttributeName: PK
      KeyType: HASH
  SSESpecification:
    SSEEnabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DynamoDBTable:
  Type: AWS::DynamoDB::Table
Properties:
  AttributeDefinitions:
    - AttributeName: PK
      AttributeType: S
  BillingMode: PAY_PER_REQUEST
  KeySchema:
    - AttributeName: PK
      KeyType: HASH
  SSESpecification:
    SSEEnabled: false
DynamoDB Accelerator controls

Topics

- [CT.DAX.PR.1] Require encryption at rest for all Amazon DynamoDB Accelerator (DAX) clusters
- [CT.DAX.PR.2] Require an Amazon DAX cluster to deploy nodes to at least three Availability Zones
- [CT.DAX.PR.3] Require an Amazon DAX cluster to encrypt data in transit with Transport Layer Security (TLS)

[CT.DAX.PR.1] Require encryption at rest for all Amazon DynamoDB Accelerator (DAX) clusters

This control checks whether Amazon DynamoDB Accelerator (DAX) clusters are encrypted at rest.

Note

The control CT.DAX.PR.1 cannot be activated from home Regions Canada (Central) Region, Europe (Stockholm) Region, and Asia Pacific (Seoul) Region, because the AWS::DAX::Cluster resource type is not available in those Regions. If your home Region is not one of these three, you can activate the control for these three Regions from another home Region, if these three Regions are governed by AWS Control Tower in your landing zone. For example, if your home Region is US West (Oregon) Region, you can deploy the control to Canada (Central) Region, if Canada (Central) Region is governed by AWS Control Tower.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::DAX::Cluster
- **AWS CloudFormation guard rule:** [CT.DAX.PR.1 rule specification](#)

Details and examples
• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.DAX.PR.1 rule specification](#)
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.DAX.PR.1 example templates](#)

**Explanation**

Encrypting data at rest reduces the risk that data stored on disk may be accessible to a user who is not authenticated to AWS. Encryption adds another set of access controls, which limits the ability of unauthorized users to gain access to the data. For example, API permissions must decrypt the data before it can be read.

**Remediation for rule failure**

Provide an SSESpecification configuration with SSEEnabled set to true.

The examples that follow show how to implement this remediation.

**Amazon DAX Cluster - Example**

Amazon DAX cluster configured with server-side encryption enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "DAXCluster": {
        "Type": "AWS::DAX::Cluster",
        "Properties": {
            "IAMRoleARN": {
                "Fn::GetAtt": [
                    "DAXServiceRole",
                    "Arn"
                ],
            },
            "NodeType": "dax.t3.small",
            "ReplicationFactor": 1,
            "SSESpecification": {
                "SSEEnabled": true
            }
        }
    }
}
```
YAML example

DAXCluster:
  Type: AWS::DAX::Cluster
  Properties:
    IAMRoleARN: !GetAtt 'DAXServiceRole.Arn'
    NodeType: dax.t3.small
    ReplicationFactor: 1
    SSESpecification:
      SSEEnabled: true

CT.DAX.PR.1 rule specification

# #################################################################
##       Rule Specification       ##
# #################################################################
# Rule Identifier:
#  dax_cluster_encryption_enabled_check
# Description:
#  This control checks whether Amazon DynamoDB Accelerator (DAX) clusters are
#  encrypted at rest.
# Reports on:
#  AWS::DAX::Cluster
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
# Rule Parameters:
#  None
# Scenarios:
#  Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any DAX Cluster resources
#     Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains at least one DAX Cluster resource
#     And: 'SSESpecification' has not been provided
#     Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains at least one DAX Cluster resource
#     And: 'SSESpecification' has been provided and 'SSESpecification.SSEEnabled' is missing or has been set to a
#             value other than bool(true)
#     Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains at least one DAX Cluster resource
#     And: 'SSESpecification' has been provided and 'SSESpecification.SSEEnabled' is present and has been set to
#             bool(true)
#     Then: PASS

# Constants
#
let DAX_CLUSTER_TYPE = "AWS::DAX::Cluster"
let INPUT_DOCUMENT = this

# Assignments
#
let dax_clusters = Resources.*[ Type == %DAX_CLUSTER_TYPE ]

# Primary Rules
#
rule dax_cluster_encryption_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
   %dax_clusters not empty {
     check(%dax_clusters.Properties)
[CT.DAX.PR.1]: Require encryption at rest for all Amazon DynamoDB Accelerator (DAX) clusters

[FIX]: Provide an 'SSESpecification' configuration with 'SSEEnabled' set to 'true'.

>>

rule dax_cluster_encryption_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %DAX_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%DAX_CLUSTER_TYPE.resourceProperties)
  <<
  [CT.DAX.PR.1]: Require encryption at rest for all Amazon DynamoDB Accelerator (DAX) clusters
  [FIX]: Provide an 'SSESpecification' configuration with 'SSEEnabled' set to 'true'.
  >>
}

#
# Parameterized Rules
#
rule check(dax_cluster) {
  %dax_cluster {
    # Scenario 2
    SSESpecification exists
    SSESpecification is_struct

    # Scenario 3 and 4
    SSESpecification {
      SSEEnabled exists
      SSEEnabled == true
    }
  }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
CT.DAX.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

DAXServiceRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service: dax.amazonaws.com
            Action: sts:AssumeRole
        - Effect: Allow
          Action:
            - dynamodb:DescribeTable
            - dynamodb:PutItem
            - dynamodb:GetItem
            - dynamodb:UpdateItem
            - dynamodb:DeleteItem
            - dynamodb:Query
            - dynamodb:Scan
            - dynamodb:BatchGetItem
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DAXServiceRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service: dax.amazonaws.com
          Action: sts:AssumeRole
      Path: /
    Policies:
      - PolicyName: DynamoAccessPolicy
        PolicyDocument:
          Version: '2012-10-17'
          Statement:
            - Effect: Allow
              Action:
                - dynamodb:DescribeTable
                - dynamodb:PutItem
                - dynamodb:GetItem

- dynamodb:BatchWriteItem
- dynamodb:ConditionCheckItem

Resource:
  Fn::Sub: arn:${AWS::Partition}:dynamodb:${AWS::Region}:${AWS::AccountId}::*

DAXCluster:
  Type: AWS::DAX::Cluster
  Properties:
    IAMRoleARN:
      Fn::GetAtt: [DAXServiceRole, Arn]
    NodeType: dax.t3.small
    ReplicationFactor: 1
    SSESpecification:
      SSEEnabled: true
[CT.DAX.PR.2] Require an Amazon DAX cluster to deploy nodes to at least three Availability Zones

This control checks whether an Amazon DAX cluster is configured to deploy cluster nodes to at least three Availability Zones.

- **Control objective:** Improve resiliency, Improve availability
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::DAX::Cluster
- **AWS CloudFormation guard rule:** [CT.DAX.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.DAX.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.DAX.PR.2 example templates](#)
Explantion

AWS Control Tower recommends that you deploy your Amazon DAX clusters in multiple Availability Zones. This deployment technique allows you to design and operate applications and databases that fail over between Availability Zones automatically, without interruption. For production usage, we strongly recommend that you deploy DAX across at least three nodes, with each node placed into a different Availability Zone.

Remediation for rule failure

Set the ReplicationFactor parameter to an integer value greater than or equal to three (>= 3), and set the AvailabilityZones parameter to a list containing three unique Availability Zone entries.

The examples that follow show how to implement this remediation.

Amazon DAX cluster - Example

Amazon DAX cluster configured with three nodes and three distinct Availability Zones. The example is shown in JSON and in YAML.

JSON example

```json
{
    "DaxCluster": {
        "Type": "AWS::DAX::Cluster",
        "Properties": {
            "IAMRoleARN": {
                "Fn::GetAtt": [
                    "DaxDynamoAccessRole",
                    "Arn"
                ]
            },
            "NodeType": "dax.t3.small",
            "ReplicationFactor": 3,
            "AvailabilityZones": [
                {
                    "Fn::Select": [
                        0,
                        {
                            "Fn::GetAZs": ""
                        }
                    ]
                }
            ]
        }
    }
}
```
YAML example

DaxCluster:
  Type: AWS::DAX::Cluster
  Properties:
    IAMRoleARN: !GetAtt 'DaxDynamoAccessRole.Arn'
    NodeType: dax.t3.small
    ReplicationFactor: 3
    AvailabilityZones:
      - !Select
        - 0
        - !GetAZs ''
      - !Select
        - 1
        - !GetAZs ''
      - !Select
        - 2
        - !GetAZs ''
CT.DAX.PR.2 rule specification

```
# ###################################################################
## Rule Specification        ##
# ###################################################################
#
# Rule Identifier:
#  dax_cluster_multi_az_check
#
# Description:
#  This control checks whether an Amazon DAX cluster is configured to deploy cluster
#  nodes to at least three Availability Zones.
#
# Reports on:
#  AWS::DAX::Cluster
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#  None
#
# Scenarios:
#  Scenario: 1
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#    And: The input document does not contain any DAX cluster resources
#    Then: SKIP
#  Scenario: 2
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#    And: The input document contains a DAX cluster resource
#    And: 'ReplicationFactor' has not been provided or has been provided as an
#        integer
#        value less than three (< 3)
#    And: 'AvailabilityZones' has not been provided or provided as an empty list or
#        list with less than three unique entries
#    Then: FAIL
#  Scenario: 3
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a DAX cluster resource
# And: 'ReplicationFactor' has been provided as an integer value greater than or equal to three (>= 3)
# And: 'AvailabilityZones' has not been provided or provided as an empty list or list with less than three unique entries
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a DAX cluster resource
# And: 'ReplicationFactor' has not been provided or has been provided as an integer value less than three (< 3)
# And: 'AvailabilityZones' has been provided as a list with three or more unique entries
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a DAX cluster resource
# And: 'ReplicationFactor' has been provided as an integer value greater than or equal to three (>= 3)
# And: 'AvailabilityZones' has been provided as a list with three or more unique entries
# Then: PASS

# Constants

let DAX_CLUSTER_TYPE = "AWS::DAX::Cluster"
let MINIMUM_NODE_COUNT = 3
let INPUT_DOCUMENT = this

# Assignments

let dax_clusters = Resources.*[ Type == %DAX_CLUSTER_TYPE ]

# Primary Rules

rule dax_cluster_multi_az_check when is_cfn_template(%INPUT_DOCUMENT)
%dax_clusters not empty {
check(%dax_clusters.Properties)
<<
[CT.DAX.PR.2]: Require an Amazon DAX cluster to deploy nodes to at least three Availability Zones
[FIX]: Set the 'ReplicationFactor' parameter to an integer value greater than or equal to three (>= 3), and set the 'AvailabilityZones' parameter to a list containing three unique Availability Zone entries.
>>
}

rule dax_cluster_multi_az_check when is_cfn_hook(%INPUT_DOCUMENT, %DAX_CLUSTER_TYPE) {
check(%INPUT_DOCUMENT.%DAX_CLUSTER_TYPE.resourceProperties)
<<
[CT.DAX.PR.2]: Require an Amazon DAX cluster to deploy nodes to at least three Availability Zones
[FIX]: Set the 'ReplicationFactor' parameter to an integer value greater than or equal to three (>= 3), and set the 'AvailabilityZones' parameter to a list containing three unique Availability Zone entries.
>>
}

# Parameterized Rules
#
rule check(dax_cluster) {
  %dax_cluster {
    # Scenario 2
    ReplicationFactor exists
    AvailabilityZones exists
    AvailabilityZones is_list
    AvailabilityZones not empty

    # Scenarios 3, 4 and 5
    ReplicationFactor >= %MINIMUM_NODE_COUNT

    AvailabilityZones[0] exists
    AvailabilityZones[1] exists
    AvailabilityZones[2] exists

    let az_one = AvailabilityZones[0]
    let az_two = AvailabilityZones[1]
    let az_three = AvailabilityZones[2]
check_az_is_unique(%az_one, %az_two, %az_three)
check_az_is_unique(%az_two, %az_one, %az_three)
}
}

rule check_az_is_unique(az, first_az, second_az) {
  %az not in %first_az
  %az not in %second_az
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.DAX.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

DaxDynamoAccessRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: "2012-10-17"
    Statement:
      - Effect: Allow
        Principal:
Service: dax.amazonaws.com
Action: sts:AssumeRole
Path: /
Policies:
- PolicyName: DynamoAccessPolicy
  PolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Action:
        - dynamodb:DescribeTable
        - dynamodb:PutItem
        - dynamodb:GetItem
        - dynamodb:UpdateItem
        - dynamodb:DeleteItem
        - dynamodb:Query
        - dynamodb:Scan
        - dynamodb:BatchGetItem
        - dynamodb:BatchWriteItem
        - dynamodb:ConditionCheckItem
      Resource:
        Fn::Sub: arn:${AWS::Partition}:dynamodb:${AWS::Region}:*
        ${AWS::AccountId}:*
DaxCluster:
  Type: AWS::DAX::Cluster
  Properties:
    IAMRoleARN:
      Fn::GetAtt:
        - DaxDynamoAccessRole
        - Arn
    NodeType: dax.t3.small
    ReplicationFactor: 3
    AvailabilityZones:
    - Fn::Select:
      - 0
      - Fn::GetAZs: ''
    - Fn::Select:
      - 1
      - Fn::GetAZs: ''
    - Fn::Select:
      - 2
      - Fn::GetAZs: ''
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DaxDynamoAccessRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
      - Effect: Allow
        Principal:
          Service: dax.amazonaws.com
        Action: sts:AssumeRole
        Path: /
      Policies:
      - PolicyName: DynamoAccessPolicy
        PolicyDocument:
          Version: '2012-10-17'
          Statement:
          - Effect: Allow
            Action:
              dynamodb:DescribeTable
              dynamodb:PutItem
              dynamodb:GetItem
              dynamodb:UpdateItem
              dynamodb:DeleteItem
              dynamodb:Query
              dynamodb:Scan
              dynamodb:BatchGetItem
              dynamodb:BatchWriteItem
              dynamodb:ConditionCheckItem
          Resource:
            Fn::Sub: arn:${AWS::Partition}:dynamodb:${AWS::Region}:${AWS::AccountId}:
${AWS::AccountId}:*
DaxCluster:
  Type: AWS::DAX::Cluster
  Properties:
    IAMRoleARN:
      Fn::GetAtt:
[CT.DAX.PR.3] Require an Amazon DAX cluster to encrypt data in transit with Transport Layer Security (TLS)

This control checks whether an Amazon DynamoDB Accelerator (DAX) cluster endpoint is configured to encrypt data in transit with Transport Layer Security (TLS).

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::DAX::Cluster
- **AWS CloudFormation guard rule:** [CT.DAX.PR.3 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.DAX.PR.3 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.DAX.PR.3 example templates](#)

Explanation

Amazon DynamoDB Accelerator (DAX) supports encryption in transit of data between your application and your DAX cluster, so that you can use DAX in applications with stringent encryption requirements. DAX encryption in transit ensures that all requests and responses between the application and the cluster are encrypted by transport level security (TLS), and that connections to the cluster can be authenticated by verification of a cluster x509 certificate.
Usage considerations

- To enable encryption in transit between your application and DAX cluster, be sure to use a recent version of any of the DAX clients that support TLS in your application.

Encryption in transit cannot be enabled on an existing DAX cluster. To use encryption in transit in an existing DAX application, create a new cluster with encryption in transit enabled, shift your application's traffic to it, then delete the old cluster.

Remediation for rule failure

Set the value of the ClusterEndpointEncryptionType property to TLS.

The examples that follow show how to implement this remediation.

Amazon DAX Cluster - Example

An Amazon DAX cluster configured to encrypt data in transit. The example is shown in JSON and in YAML.

JSON example

```json
{
    "DaxCluster": {
        "Type": "AWS::DAX::Cluster",
        "Properties": {
            "IAMRoleARN": {
                "Fn::GetAtt": [
                    "DaxDynamoAccessRole",
                    "Arn"
                ]
            },
            "NodeType": "dax.t3.small",
            "ReplicationFactor": 3,
            "ClusterEndpointEncryptionType": "TLS"
        }
    }
}
```
**YAML example**

DaxCluster:
  Type: AWS::DAX::Cluster
  Properties:
    IAMRoleARN: !GetAtt 'DaxDynamoAccessRole.Arn'
    NodeType: dax.t3.small
    ReplicationFactor: 3
    ClusterEndpointEncryptionType: TLS

**CT.DAX.PR.3 rule specification**

```yaml
# #########################################################################
##      Rule Specification        ##
#########################################################################
#
# Rule Identifier:
#   dax_tls_endpoint_encryption_check
#
# Description:
#   This control checks whether an Amazon DAX cluster endpoint is configured to encrypt
#   data in transit with Transport Layer Security (TLS).
#
# Reports on:
#   AWS::DAX::Cluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#       Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document does not contain any DAX cluster resources
#       Then: SKIP
#   Scenario: 2
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a DAX cluster resource
#     And: 'ClusterEndpointEncryptionType' has not been provided
#     Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a DAX cluster resource
#     And: 'ClusterEndpointEncryptionType' has been provided and set to a value other than 'TLS'
#     Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a DAX cluster resource
#     And: 'ClusterEndpointEncryptionType' has been provided and set to 'TLS'
#     Then: PASS

# Constants

let DAX_CLUSTER_TYPE = "AWS::DAX::Cluster"
let ALLOWED_CLUSTER_ENCRYPTION_TYPES = [ "TLS" ]
let INPUT_DOCUMENT = this

# Assignments

let dax_clusters = Resources.*[ Type == %DAX_CLUSTER_TYPE ]

# Primary Rules

# rule dax_tls_endpoint_encryption_check when is_cfn_template(%INPUT_DOCUMENT) %dax_clusters not empty {
check(%dax_clusters.Properties)
<<
[CT.DAX.PR.3]: Require an Amazon DAX cluster to encrypt data in transit with Transport Layer Security (TLS)
[FIX]: Set the value of the ClusterEndpointEncryptionType property to TLS.
>>
}
rule dax_tls_endpoint_encryption_check when is_cfn_hook(%INPUT_DOCUMENT, %DAX_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%DAX_CLUSTER_TYPE.resourceProperties)
    <<
    [CT.DAX.PR.3]: Require an Amazon DAX cluster to encrypt data in transit with Transport Layer Security (TLS)
    [FIX]: Set the value of the ClusterEndpointEncryptionType property to TLS.
    >>
}

# # Parameterized Rules #
rule check(dax_cluster) {
    %dax_cluster {
        # Scenario 2
        ClusterEndpointEncryptionType exists

        # Scenarios 3 and 4
        ClusterEndpointEncryptionType in %ALLOWED_CLUSTER_ENCRYPTION_TYPES
    }
}

# # Utility Rules #
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.DAX.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.
PASS Example - Use this template to verify a compliant resource creation.

Resources:
DaxDynamoAccessRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          Service: dax.amazonaws.com
        Action: sts:AssumeRole
      Path: /
    Policies:
      - PolicyName: DynamoAccessPolicy
        PolicyDocument:
          Version: '2012-10-17'
          Statement:
            - Effect: Allow
              Action:
                - dynamodb:DescribeTable
                - dynamodb:PutItem
                - dynamodb:GetItem
                - dynamodb:UpdateItem
                - dynamodb:DeleteItem
                - dynamodb:Query
                - dynamodb:Scan
                - dynamodb:BatchGetItem
                - dynamodb:BatchWriteItem
                - dynamodb:ConditionCheckItem
          Resource:
            Fn::Sub: arn:${AWS::Partition}:dynamodb:${AWS::Region}:
            ${AWS::AccountId}::*

DaxCluster:
  Type: AWS::DAX::Cluster
Properties:
  IAMRoleARN:
    Fn::GetAtt:
      - DaxDynamoAccessRole
      - Arn
  NodeType: dax.t3.small
  ReplicationFactor: 3
ClusterEndpointEncryptionType: TLS

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DaxDynamoAccessRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service: dax.amazonaws.com
          Action: sts:AssumeRole
      Path: /
  Policies:
    - PolicyName: DynamoAccessPolicy
      PolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Action:
              - dynamodb:DescribeTable
              - dynamodb:PutItem
              - dynamodb:GetItem
              - dynamodb:UpdateItem
              - dynamodb:DeleteItem
              - dynamodb:Query
              - dynamodb:Scan
              - dynamodb:BatchGetItem
              - dynamodb:BatchWriteItem
              - dynamodb:ConditionCheckItem
            Resource:
              Fn::Sub: arn:${AWS::Partition}:dynamodb:${AWS::Region}:${AWS::AccountId}:*
DaxCluster:
  Type: AWS::DAX::Cluster
  Properties:
AWS Elastic Beanstalk controls

Topics

- [CT.ELASTICBEANSTALK.PR.1] Require AWS Elastic Beanstalk environments to have enhanced health reporting enabled
- [CT.ELASTICBEANSTALK.PR.2] Require an AWS Elastic Beanstalk environment to have managed platform updates configured
- [CT.ELASTICBEANSTALK.PR.3] Require an AWS Elastic Beanstalk environment to have a logging configuration

[CT.ELASTICBEANSTALK.PR.1] Require AWS Elastic Beanstalk environments to have enhanced health reporting enabled

This control checks whether AWS Elastic Beanstalk environments and configuration templates are configured for enhanced health reporting.

- **Control objective:** Improve resiliency
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticBeanstalk::Environment,
  AWS::ElasticBeanstalk::ConfigurationTemplate
- **AWS CloudFormation guard rule:** [CT.ELASTICBEANSTALK.PR.1 rule specification]

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICBEANSTALK.PR.1 rule specification]
For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICBEANSTALK.PR.1 example templates](#)

**Explanation**

Elastic Beanstalk enhanced health reporting enables a more rapid response to changes in the health of the underlying infrastructure. These changes could result in a lack of availability of the application.

Elastic Beanstalk enhanced health reporting provides a status descriptor to gauge the severity of the identified issues and identify possible causes to investigate. The Elastic Beanstalk health agent, included in supported Amazon Machine Images (AMIs), evaluates logs and metrics of environment EC2 instances.

**Remediation for rule failure**

For AWS Elastic Beanstalk environments, configure an OptionSetting with Namespace set to `aws:elasticbeanstalk:healthreporting:system`, OptionName set to `SystemType`, and Value set to `enhanced`. For AWS Elastic Beanstalk configuration templates, configure an OptionSetting with Namespace set to `aws:elasticbeanstalk:healthreporting:system`, OptionName set to `SystemType`, and Value set to `enhanced`. Omit this setting to adopt the default value of `enhanced`.

The examples that follow show how to implement this remediation.

**AWS Elastic Beanstalk Environment - Example**

AWS Elastic Beanstalk environment configured with enhanced health reporting enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ElasticBeanstalkEnvironment": {
        "Type": "AWS::ElasticBeanstalk::Environment",
        "Properties": {
            "ApplicationName": {
                "Ref": "App"
            },
            "SolutionStackName": "64bit Amazon Linux 2 v3.4.0 running Python 3.8",
            "OptionSettings": [
```
YAML example

```yaml
ElasticBeanstalkEnvironment:
  Type: AWS::ElasticBeanstalk::Environment
  Properties:
    ApplicationName: !Ref 'App'
    SolutionStackName: 64bit Amazon Linux 2 v3.4.0 running Python 3.8
    OptionSettings:
      - Namespace: aws:elasticbeanstalk:healthreporting:system
        OptionName: SystemType
        Value: enhanced
      - Namespace: aws:autoscaling:launchconfiguration
        OptionName: IamInstanceProfile
        Value: !Ref 'InstanceProfile'
```

The examples that follow show how to implement this remediation.

**AWS Elastic Beanstalk Configuration Template - Example One**

AWS Elastic Beanstalk configuration template configured with enhanced health reporting, enabled by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.
The examples that follow show how to implement this remediation.
AWS Elastic Beanstalk Configuration Template - Example Two

AWS Elastic Beanstalk configuration template configured with enhanced health reporting, enabled by means of an entry in the OptionSettings property. The example is shown in JSON and in YAML.

JSON example

```
{
    "ElasticBeanstalkConfigurationTemplate": {
        "Type": "AWS::ElasticBeanstalk::ConfigurationTemplate",
        "Properties": {
            "ApplicationName": {
                "Ref": "App"
            },
            "SolutionStackName": "64bit Amazon Linux 2 v3.4.0 running Python 3.8",
            "OptionSettings": [
                {
                    "Namespace": "aws:elasticbeanstalk:healthreporting:system",
                    "OptionName": "SystemType",
                    "Value": "enhanced"
                }
            ]
        }
    }
}
```

YAML example

```
ElasticBeanstalkConfigurationTemplate:
    Type: AWS::ElasticBeanstalk::ConfigurationTemplate
    Properties:
        ApplicationName: !Ref 'App'
        SolutionStackName: 64bit Amazon Linux 2 v3.4.0 running Python 3.8
        OptionSettings:
            - Namespace: aws:elasticbeanstalk:healthreporting:system
              OptionName: SystemType
              Value: enhanced
```
# CT.ELASTICBEANSTALK.PR.1 rule specification

## Rule Specification

---

### Rule Identifier:
elastic_beanstalk_enhanced_health_reporting_enabled_check

### Description:
This control checks whether AWS Elastic Beanstalk environments and configuration templates are configured for 'enhanced' health reporting.

### Reports on:
AWS::ElasticBeanstalk::Environment, AWS::ElasticBeanstalk::ConfigurationTemplate

### Evaluates:
AWS CloudFormation, AWS CloudFormation hook

### Rule Parameters:
None

### Scenarios:

1. **Scenario: 1**
   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   And: The input document does not contain any Elastic Beanstalk environment resources or Elastic Beanstalk configuration template resources
   Then: SKIP

2. **Scenario: 2**
   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   And: The input document contains an Elastic Beanstalk environment resource
   And: 'OptionSettings' is not present in the resource properties or is an empty list
   Then: FAIL

3. **Scenario: 3**
   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

---
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Beanstalk environment resource or an Elastic Beanstalk configuration template resource
# And: 'OptionSettings' is present in the resource properties as a non-empty list
# And: An entry in the 'OptionSettings' list has a 'Namespace' property with a value of
#   'aws:elasticbeanstalk:healthreporting:system'
# And: That same entry has an 'OptionName' property with a value of 'SystemType'
# And: That same entry has a 'Value' property with a value of anything other than 'enhanced', or the 'Value' property is not provided.
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Beanstalk configuration template resource
# And: 'OptionSettings' is not present in the resource properties or is an empty list
# Then: PASS
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Beanstalk configuration template resource
# And: 'OptionSettings' is present in the resource properties as a non-empty list
# And: No entry in the 'OptionSettings' list has both a 'Namespace' property with a value of
#   'aws:elasticbeanstalk:healthreporting:system'
# And: No entry in the 'OptionSettings' list has both a 'Namespace' property with a value of
#   'aws:elasticbeanstalk:healthreporting:system'
# Then: PASS
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elastic Beanstalk environment resource or an Elastic Beanstalk configuration template resource
And: 'OptionSettings' is present in the resource properties as a non-empty list
And: Every entry in the 'OptionSettings' list that has both a 'Namespace' property with a value of
    'aws:elasticbeanstalk:healthreporting:system'
    and an 'OptionName' property with a value of 'SystemType' also has a 'Value' property with a value of
    'enhanced'
Then: PASS

# Constants

let ELASTIC_BEANSTALK_ENVIRONMENT_TYPE = "AWS::ElasticBeanstalk::Environment"
let ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE = "AWS::ElasticBeanstalk::ConfigurationTemplate"
let ELASTIC_BEANSTALK_ENHANCED_HEALTH_REPORTING_NAMESPACE = "aws:elasticbeanstalk:healthreporting:system"
let ELASTIC_BEANSTALK_SYSTEM_TYPE_OPTION_NAME = "SystemType"
let ELASTIC_BEANSTALK_ENHANCED_VALUE = "enhanced"
let INPUT_DOCUMENT = this

# Assignments

let elastic_beanstalk_environments = Resources.*[ Type == %ELASTIC_BEANSTALK_ENVIRONMENT_TYPE ]
let elastic_beanstalk_configuration_templates = Resources.*[ Type == %ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE ]

# Primary Rules

rule elastic_beanstalk_enhanced_health_reporting_enabled_check when
    is_cfn_template(%INPUT_DOCUMENT)
    %elastic_beanstalk_environments not empty {
        check_elastic_beanstalk_environments(%elastic_beanstalk_environments.Properties) <<
        [CT.ELASTICBEANSTALK.PR.1]: Require AWS Elastic Beanstalk environments to have enhanced health reporting enabled
[FIX]: For AWS Elastic Beanstalk environments, configure an 'OptionSetting' with 'Namespace' set to 'aws:elasticbeanstalk:healthreporting:system', 'OptionName' set to 'SystemType', and 'Value' set to 'enhanced'. For AWS Elastic Beanstalk configuration templates, configure an 'OptionSetting' with 'Namespace' set to 'aws:elasticbeanstalk:healthreporting:system', 'OptionName' set to 'SystemType', and 'Value' set to 'enhanced'. Omit this setting to adopt the default value of 'enhanced'.

}}

rule elastic_beanstalk_enhanced_health_reporting_enabled_check when
is_cfn_template(%INPUT_DOCUMENT)
%elastic_beanstalk_configuration_templates not empty {

check_elastic_beanstalk_configuration_templates(%elastic_beanstalk_configuration_templates)
<<

[CT.ELASTICBEANSTALK.PR.1]: Require AWS Elastic Beanstalk environments to have enhanced health reporting enabled

[FIX]: For AWS Elastic Beanstalk environments, configure an 'OptionSetting' with 'Namespace' set to 'aws:elasticbeanstalk:healthreporting:system', 'OptionName' set to 'SystemType', and 'Value' set to 'enhanced'. For AWS Elastic Beanstalk configuration templates, configure an 'OptionSetting' with 'Namespace' set to 'aws:elasticbeanstalk:healthreporting:system', 'OptionName' set to 'SystemType', and 'Value' set to 'enhanced'. Omit this setting to adopt the default value of 'enhanced'.

}}

rule elastic_beanstalk_enhanced_health_reporting_enabled_check when
is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_BEANSTALK_ENVIRONMENT_TYPE) {
check_elastic_beanstalk_environments(%INPUT_DOCUMENT.%ELASTIC_BEANSTALK_ENVIRONMENT_TYPE.resourceProperties)
<<

[CT.ELASTICBEANSTALK.PR.1]: Require AWS Elastic Beanstalk environments to have enhanced health reporting enabled

[FIX]: For AWS Elastic Beanstalk environments, configure an 'OptionSetting' with 'Namespace' set to 'aws:elasticbeanstalk:healthreporting:system', 'OptionName' set to 'SystemType', and 'Value' set to 'enhanced'. For AWS Elastic Beanstalk configuration templates, configure an 'OptionSetting' with 'Namespace' set to 'aws:elasticbeanstalk:healthreporting:system', 'OptionName' set to 'SystemType', and 'Value' set to 'enhanced'. Omit this setting to adopt the default value of 'enhanced'.

}}
rule elastic_beanstalk_enhanced_health_reporting_enabled_check when
  is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE) {
    check_elastic_beanstalk_configuration_templates(%INPUT_DOCUMENT,
    %ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE.resourceProperties)
    <<
    [CT.ELASTICBEANSTALK.PR.1]: Require AWS Elastic Beanstalk environments to have
    enhanced health reporting enabled
    [FIX]: For AWS Elastic Beanstalk environments, configure an 'OptionSetting'
    with 'Namespace' set to 'aws:elasticbeanstalk:healthreporting:system', 'OptionName'
    set to 'SystemType', and 'Value' set to 'enhanced'. For AWS Elastic Beanstalk
    configuration templates, configure an 'OptionSetting' with 'Namespace' set to
    'aws:elasticbeanstalk:healthreporting:system', 'OptionName' set to 'SystemType', and
    'Value' set to 'enhanced'. Omit this setting to adopt the default value of 'enhanced'.
    >>
  }

# # Parameterized Rules #
rule check_elastic_beanstalk_environments(elastic_beanstalk_environments) {
  %elastic_beanstalk_environments {
    # Scenario 2
    check_option_settings_exists_or_is_non_empty_list(this)

    # Scenario 3, 4, 7
    check_option_settings_enhanced(OptionSettings[*])
  }
}

rule check_elastic_beanstalk_configuration_templates(elastic_beanstalk_configuration_templates) {
  %elastic_beanstalk_configuration_templates {
    # Scenario 7
    check_option_settings_with_enhanced_health_reporting(this) or
    # Scenario 6
    check_option_settings_without_health_reporting(this) or
    # Scenario 5
    check_option_settings_not_exists_or_is_empty_list(this)
  }
}
rule
check_option_settings_with_enhanced_health_reporting(elastic_beanstalk_configuration_templates) {
   %elastic_beanstalk_configuration_templates [
      filter_option_settings_with_health_reporting(this)
   ] {
      check_option_settings_enhanced(OptionSettings[*])
   }
}

rule
filter_option_settings_with_health_reporting(elastic_beanstalk_configuration_templates) {
   some %elastic_beanstalk_configuration_templates {
      check_option_settings_exists_or_is_non_empty_list(this)

      some OptionSettings[*] {
         Namespace exists
         OptionName exists

         Namespace == %ELASTIC_BEANSTALK_ENHANCED_HEALTH_REPORTING_NAMESPACE
         OptionName == %ELASTIC_BEANSTALK_SYSTEM_TYPE_OPTION_NAME
      }
   }
}

rule check_option_settings_enhanced(option_settings) {
   # Scenario 3, 4
   some %option_settings[*] {
      Namespace exists
      OptionName exists
      Value exists

      Namespace == %ELASTIC_BEANSTALK_ENHANCED_HEALTH_REPORTING_NAMESPACE
      OptionName == %ELASTIC_BEANSTALK_SYSTEM_TYPE_OPTION_NAME
      Value == %ELASTIC_BEANSTALK_ENHANCED_VALUE
   }

   # Scenario 7
   let option_setting_duplicates = OptionSettings [
      Namespace exists
      OptionName exists
      Value exists
   ]
rule check_option_settings_without_health_reporting(elastic_beanstalk_configuration_templates)
{
    some %elastic_beanstalk_configuration_templates {
        check_option_settings_exists_or_is_non_empty_list(this)

        let option_settings_with_health_reporting = OptionSettings [ 
            Namespace exists
            OptionName exists

            Namespace == %ELASTIC_BEANSTALK_ENHANCED_HEALTH_REPORTING_NAMESPACE
            OptionName == %ELASTIC_BEANSTALK_SYSTEM_TYPE_OPTION_NAME
        ]
        %option_settings_with_health_reporting empty
    }
}

rule check_option_settings_exists_or_is_non_empty_list(elastic_beanstalk_resource) {
    %elastic_beanstalk_resource {
        OptionSettings exists
        OptionSettings is_list
        OptionSettings not empty
    }
}

rule check_option_settings_not_exists_or_is_empty_list(configuration_template) {
    %configuration_template {
        OptionSettings not_exists or
        check_is_empty_list(OptionSettings)
    }
}

rule check_is_empty_list(option_settings) {
    %option_settings {
        this is_list
        this empty
    }
}
CT.ELASTICBEANSTALK.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  InstanceRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: "2012-10-17"
        Statement:
        - Effect: Allow
          Principal:
            Service:
            - elasticbeanstalk.amazonaws.com
          Action:
          - 'sts:AssumeRole'
  InstanceProfile:
    Type: AWS::IAM::InstanceProfile
Properties:
  Roles:
    - Ref: InstanceRole

App:
  Type: AWS::ElasticBeanstalk::Application

ElasticBeanstalkConfigurationTemplate:
  Type: AWS::ElasticBeanstalk::ConfigurationTemplate
  Properties:
    ApplicationName:
      Ref: App
    SolutionStackName: "64bit Amazon Linux 2 v3.4.0 running Python 3.8"
    OptionSettings:
      - Namespace: aws:autoscaling:launchconfiguration
        OptionName: IamInstanceProfile
        Value:
          Ref: InstanceProfile

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  InstanceRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: "2012-10-17"
        Statement:
          - Effect: Allow
            Principal:
              Service:
                - ec2.amazonaws.com
            Action:
              - 'sts:AssumeRole'

  InstanceProfile:
    Type: AWS::IAM::InstanceProfile
    Properties:
      Roles:
        - Ref: InstanceRole

  App:
    Type: AWS::ElasticBeanstalk::Application
ElasticBeanstalkEnvironment:
  Type: AWS::ElasticBeanstalk::Environment
  Properties:
    SolutionStackName: "64bit Amazon Linux 2 v3.4.0 running Python 3.8"
    ApplicationName:
      Ref: App
  OptionSettings:
    - Namespace: aws:autoscaling:launchconfiguration
      OptionName: IamInstanceProfile
      Value:
        Ref: InstanceProfile
    - Namespace: aws:elasticbeanstalk:healthreporting:system
      OptionName: SystemType
      Value: basic

[CT.ELASTICBEANSTALK.PR.2] Require an AWS Elastic Beanstalk environment to have managed platform updates configured

This control checks whether managed platform updates in AWS Elastic Beanstalk environments and configuration templates are activated.

- **Control objective:** Manage vulnerabilities
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticBeanstalk::Environment,
  AWS::ElasticBeanstalk::ConfigurationTemplate
- **AWS CloudFormation guard rule:** [CT.ELASTICBEANSTALK.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICBEANSTALK.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICBEANSTALK.PR.2 example templates](#)

Explanation
Managed platform updates ensure that the most recent platform fixes, updates, and features for the environment are installed. Keeping patch installations up to date is an important step in securing systems.

**Usage considerations**

- When you set up managed actions on AWS Elastic Beanstalk environments and configuration templates, you must provide `PreferredStartTime` and `UpdateLevel` option settings also.
- This control allows you to set up managed actions on AWS Elastic Beanstalk environments only, because environment-level settings take precedence over settings that are defined in configuration templates.
- This control does not allow you to deactivate managed actions on AWS Elastic Beanstalk configuration templates.

**Remediation for rule failure**

For AWS Elastic Beanstalk environments, create an OptionSetting with a Namespace value set to `aws:elasticbeanstalk:managedactions`, OptionName set to `ManagedActionsEnabled`, and Value set to `true`. For Elastic Beanstalk configuration templates, create an OptionSetting with a Namespace value set to `aws:elasticbeanstalk:managedactions`, OptionName set to `ManagedActionsEnabled`, and Value set to `true`, or omit this setting to adopt the default value of `true`.

The examples that follow show how to implement this remediation.

**AWS Elastic Beanstalk Environment - Example**

AWS Elastic Beanstalk environment configured with managed platform updates activated. The example is shown in JSON and in YAML.

**JSON example**

```
{
    "ElasticBeanstalkEnvironment": {
        "Type": "AWS::ElasticBeanstalk::Environment",
        "Properties": {
```
"SolutionStackName": "64bit Amazon Linux 2 v3.4.0 running Python 3.8",
"ApplicationName": {
  "Ref": "App"
},
"OptionSettings": [
{  
"Namespace": "aws:autoscaling:launchconfiguration",
"OptionName": "IamInstanceProfile",
"Value": {
  "Ref": "InstanceProfile"
}
},
{  
"Namespace": "aws:elasticbeanstalk:managedactions",
"OptionName": "ManagedActionsEnabled",
"Value": true
},
{  
"Namespace": "aws:elasticbeanstalk:managedactions",
"OptionName": "PreferredStartTime",
"Value": "Tue:09:00"
},
{  
"Namespace": "aws:elasticbeanstalk:managedactions",
"OptionName": "ServiceRoleForManagedUpdates",
"Value": "AWSServiceRoleForElasticBeanstalkManagedUpdates"
},
{  
"Namespace": "aws:elasticbeanstalk:managedactions:platformupdate",
"OptionName": "UpdateLevel",
"Value": "patch"
}
]}
}

YAML example

ElasticBeanstalkEnvironment:
  Type: AWS::ElasticBeanstalk::Environment
The examples that follow show how to implement this remediation.

**AWS Elastic Beanstalk Configuration Template - Example One**

AWS Elastic Beanstalk configuration template configured with managed platform updates enabled, by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ElasticBeanstalkConfigurationTemplate": {
        "Type": "AWS::ElasticBeanstalk::ConfigurationTemplate",
        "Properties": {
            "ApplicationName": {
                "Ref": "App"
            },
            "SolutionStackName": "64bit Amazon Linux 2 v3.4.0 running Python 3.8",
            "OptionSettings": [
                {
                    "Namespace": "aws:autoscaling:launchconfiguration",
                    "OptionName": "IamInstanceProfile",
                    "Value": "!Ref 'InstanceProfile'"
                },
                {
                    "Namespace": "aws:elasticbeanstalk:managedactions",
                    "OptionName": "ManagedActionsEnabled",
                    "Value": true
                },
                {
                    "Namespace": "aws:elasticbeanstalk:managedactions",
                    "OptionName": "PreferredStartTime",
                    "Value": "Tue:09:00"
                },
                {
                    "Namespace": "aws:elasticbeanstalk:managedactions",
                    "OptionName": "ServiceRoleForManagedUpdates",
                    "Value": "AWSServiceRoleForElasticBeanstalkManagedUpdates"
                },
                {
                    "Namespace": "aws:elasticbeanstalk:managedactions:platformupdate",
                    "OptionName": "UpdateLevel",
                    "Value": "patch"
                }
            ]
        }
    }
}
```
YAML example

ElasticBeanstalkConfigurationTemplate:
  Type: AWS::ElasticBeanstalk::ConfigurationTemplate
  Properties:
    ApplicationName: !Ref 'App'
    SolutionStackName: 64bit Amazon Linux 2 v3.4.0 running Python 3.8
    OptionSettings:
      - Namespace: aws:autoscaling:launchconfiguration
        OptionName: IamInstanceProfile
        Value: !Ref 'InstanceProfile'

The examples that follow show how to implement this remediation.

AWS Elastic Beanstalk Configuration Template - Example Two

AWS Elastic Beanstalk configuration template configured with managed platform updates enabled, by means of an entry in the OptionSettings property. The example is shown in JSON and in YAML.

JSON example

```json
{
  "ElasticBeanstalkConfigurationTemplate": {
    "Type": "AWS::ElasticBeanstalk::ConfigurationTemplate",
    "Properties": {
      "ApplicationName": {
        "Ref": "App"
      }
    }
  }
}
```
"SolutionStackName": "64bit Amazon Linux 2 v3.4.0 running Python 3.8",
"OptionSettings": [
  {
    "Namespace": "aws:elasticbeanstalk:managedactions",
    "OptionName": "ManagedActionsEnabled",
    "Value": true
  },
  {
    "Namespace": "aws:elasticbeanstalk:managedactions",
    "OptionName": "PreferredStartTime",
    "Value": "Tue:09:00"
  },
  {
    "Namespace": "aws:elasticbeanstalk:managedactions:platformupdate",
    "OptionName": "UpdateLevel",
    "Value": "minor"
  }
]

YAML example

ElasticBeanstalkConfigurationTemplate:
  Type: AWS::ElasticBeanstalk::ConfigurationTemplate
  Properties:
    ApplicationName: !Ref 'App'
    SolutionStackName: 64bit Amazon Linux 2 v3.4.0 running Python 3.8
    OptionSettings:
      - Namespace: aws:elasticbeanstalk:managedactions
        OptionName: ManagedActionsEnabled
        Value: true
      - Namespace: aws:elasticbeanstalk:managedactions
        OptionName: PreferredStartTime
        Value: Tue:09:00
      - Namespace: aws:elasticbeanstalk:managedactions:platformupdate
        OptionName: UpdateLevel
        Value: minor
# Rule Specification

## Rule Identifier:

```
elastic_beanstalk_managed_updates_enabled_check
```

## Description:

This control checks whether managed platform updates in AWS Elastic Beanstalk environments and configuration templates are activated.

## Reports on:

```
AWS::ElasticBeanstalk::Environment, AWS::ElasticBeanstalk::ConfigurationTemplate
```

## Evaluates:

```
AWS CloudFormation, AWS CloudFormation hook
```

## Rule Parameters:

```
None
```

## Scenarios:

### Scenario: 1

```
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any ElasticBeanstalk environment resources or ElasticBeanstalk configuration template resources
Then: SKIP
```

### Scenario: 2

```
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticBeanstalk environment resource
And: 'OptionSettings' is not present in the resource properties or is an empty list
Then: FAIL
```

### Scenario: 3

```
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticBeanstalk environment resource
And: 'OptionSettings' is present in the resource properties as a non-empty list
```
And: No entry in the 'OptionSettings' list has both a 'Namespace' property with a value of 'aws:elasticbeanstalk:managedactions' and an 'OptionName' property with a value of 'ManagedActionsEnabled'
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticBeanstalk environment resource or an ElasticBeanstalk configuration template resource
And: 'OptionSettings' is present in the resource properties as a non-empty list
And: An entry in the 'OptionSettings' list has a 'Namespace' property with a value of 'aws:elasticbeanstalk:managedactions'
And: That same entry has an 'OptionName' property with a value of 'ManagedActionsEnabled'
And: That same entry has a 'Value' property with a value of anything other than bool(true), or the 'Value' property is not provided.
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticBeanstalk configuration template resource
And: 'OptionSettings' is not present in the resource properties or is an empty list
Then: PASS

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticBeanstalk configuration template resource
And: 'OptionSettings' is present in the resource properties as a non-empty list
And: No entry in the 'OptionSettings' list has both a 'Namespace' property with a value of 'aws:elasticbeanstalk:managedactions' and an 'OptionName' property with a value of 'ManagedActionsEnabled'
Then: PASS

Scenario: 7
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticBeanstalk environment resource or an ElasticBeanstalk configuration template resource
And: 'OptionSettings' is present in the resource properties as a non-empty list
And: Every entry in the 'OptionSettings' list that has both a 'Namespace' property with a value of 'aws:elasticbeanstalk:managedactions' and an 'OptionName' property with a value of 'ManagedActionsEnabled'
Then: PASS

# Constants

let ELASTIC_BEANSTALK_ENVIRONMENT_TYPE = "AWS::ElasticBeanstalk::Environment"
let ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE = "AWS::ElasticBeanstalk::ConfigurationTemplate"
let ELASTIC_BEANSTALK_MANAGED_ACTIONS_NAMESPACE = "aws:elasticbeanstalk:managedactions"
let ELASTIC_BEANSTALK_MANAGED_ACTIONS_OPTION_NAME = "ManagedActionsEnabled"
let ELASTIC_BEANSTALK_MANAGED_ACTIONS_ENABLED_VALUE = ["true", true]
let INPUT_DOCUMENT = this

# Assignments

let elastic_beanstalk_environments = Resources.[ Type == %ELASTIC_BEANSTALK_ENVIRONMENT_TYPE ]
let elastic_beanstalk_configuration_templates = Resources.[ Type == %ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE ]

# Primary Rules

rule elastic_beanstalk_managed_updates_enabled_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %elastic_beanstalk_environments not empty {
    check_elastic_beanstalk_environments(%elastic_beanstalk_environments.Properties) <<
      [CT.ELASTICBEANSTALK.PR.2]: Require an AWS Elastic Beanstalk environment to have managed platform updates configured
      [FIX]: For AWS Elastic Beanstalk environments, create an 'OptionSetting' with a 'Namespace' value set to 'aws:elasticbeanstalk:managedactions', 'OptionName' set to 'ManagedActionsEnabled', and 'Value' set to 'true'. For Elastic Beanstalk Proactive controls
configuration templates, create an 'OptionSetting' with a 'Namespace' value set to 'aws:elasticbeanstalk:managedactions', 'OptionName' set to 'ManagedActionsEnabled', and 'Value' set to 'true', or omit this setting to adopt the default value of 'true'.

rule elastic_beanstalk_managed_updates_enabled_check when is_cfn_template(%INPUT_DOCUMENT)

%elastic_beanstalk_configuration_templates not empty {
    check_elastic_beanstalk_configuration_templates(%elastic_beanstalk_configuration_templates.Properties)
    <<
        [CT.ELASTICBEANSTALK.PR.2]: Require an AWS Elastic Beanstalk environment to have managed platform updates configured
        [FIX]: For AWS Elastic Beanstalk environments, create an 'OptionSetting' with a 'Namespace' value set to 'aws:elasticbeanstalk:managedactions', 'OptionName' set to 'ManagedActionsEnabled', and 'Value' set to 'true'. For Elastic Beanstalk configuration templates, create an 'OptionSetting' with a 'Namespace' value set to 'aws:elasticbeanstalk:managedactions', 'OptionName' set to 'ManagedActionsEnabled', and 'Value' set to 'true', or omit this setting to adopt the default value of 'true'.
    >>
}

rule elastic_beanstalk_managed_updates_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_BEANSTALK_ENVIRONMENT_TYPE) {
    check_elastic_beanstalk_environments(%INPUT_DOCUMENT.%ELASTIC_BEANSTALK_ENVIRONMENT_TYPE.resourceProperties)
    <<
        [CT.ELASTICBEANSTALK.PR.2]: Require an AWS Elastic Beanstalk environment to have managed platform updates configured
        [FIX]: For AWS Elastic Beanstalk environments, create an 'OptionSetting' with a 'Namespace' value set to 'aws:elasticbeanstalk:managedactions', 'OptionName' set to 'ManagedActionsEnabled', and 'Value' set to 'true'. For Elastic Beanstalk configuration templates, create an 'OptionSetting' with a 'Namespace' value set to 'aws:elasticbeanstalk:managedactions', 'OptionName' set to 'ManagedActionsEnabled', and 'Value' set to 'true', or omit this setting to adopt the default value of 'true'.
    >>
}

rule elastic_beanstalk_managed_updates_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE) {
    check_elastic_beanstalk_configuration_templates(%INPUT_DOCUMENT.%ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE.resourceProperties)
<<

[CT.ELASTICBEANSTALK.PR.2]: Require an AWS Elastic Beanstalk environment to have managed platform updates configured

[FIX]: For AWS Elastic Beanstalk environments, create an 'OptionSetting' with a 'Namespace' value set to 'aws:elasticbeanstalk:managedactions', 'OptionName' set to 'ManagedActionsEnabled', and 'Value' set to 'true'. For Elastic Beanstalk configuration templates, create an 'OptionSetting' with a 'Namespace' value set to 'aws:elasticbeanstalk:managedactions', 'OptionName' set to 'ManagedActionsEnabled', and 'Value' set to 'true', or omit this setting to adopt the default value of 'true'.

>>

# Parameterized Rules
#
rule check_elastic_beanstalk_environments(elastic_beanstalk_environments) {
  %elastic_beanstalk_environments {
    # Scenario 2
    check_option_settings_exists_and_is_non_empty_list(this)
    # Scenario 3, 4, 7
    check_option_settings_managed_actions_enabled(OptionSettings[*])
  }
}

rule check_elastic_beanstalk_configuration_templates(elastic_beanstalk_configuration_templates) {
  %elastic_beanstalk_configuration_templates {
    # Scenario 7
    check_option_settings_with_managed_actions_enabled(this) or
    # Scenario 6
    check_option_settings_without_managed_actions(this) or
    # Scenario 5
    check_option_settings_not_exists_or_is_empty_list(this)
  }
}

rule check_option_settings_with_managed_actions_enabled(elastic_beanstalk_configuration_templates) {
  %elastic_beanstalk_configuration_templates {
    filter_option_settings_with_managed_actions(this)
  }

Proactive controls 795
check_option_settings_managed_actions_enabled(OptionSettings[*])
}
}

rule
filter_option_settings_with Managed actions(elastic_beanstalk_configuration_templates)
{
  some %elastic_beanstalk_configuration_templates {
    check_option_settings_exists_and_is_non_empty_list(this)

    some OptionSettings[*] {
      Namespace exists
      OptionName exists

      Namespace == %ELASTIC_BEANSTALK_MANAGED_ACTIONS_NAMESPACE
      OptionName == %ELASTIC_BEANSTALK_MANAGED_ACTIONS_OPTION_NAME
    }
  }
}

rule check_option_settings_managed_actions_enabled(option_settings) {
  # Scenario 3, 4
  some %option_settings[*] {
    Namespace exists
    OptionName exists
    Value exists

    Namespace == %ELASTIC_BEANSTALK_MANAGED_ACTIONS_NAMESPACE
    OptionName == %ELASTIC_BEANSTALK_MANAGED_ACTIONS_OPTION_NAME
    Value in %ELASTIC_BEANSTALK_MANAGED_ACTIONS_ENABLED_VALUE
  }

  # Scenario 7
  let option_setting_duplicates = OptionSettings [
    Namespace exists
    OptionName exists
    Value exists

    Namespace == %ELASTIC_BEANSTALK_MANAGED_ACTIONS_NAMESPACE
    OptionName == %ELASTIC_BEANSTALK_MANAGED_ACTIONS_OPTION_NAME
    Value not in %ELASTIC_BEANSTALK_MANAGED_ACTIONS_ENABLED_VALUE
  ]
  %option_setting_duplicates empty
}
rule
check_option_settings_without_managed_actions(elastic_beanstalk_configuration_templates) {  
some %elastic_beanstalk_configuration_templates {  
  check_option_settings_exists_and_is_non_empty_list(this)

    let option_settings_with_managed_actions = OptionSettings [
        Namespace exists
        OptionName exists

        Namespace == %ELASTIC_BEANSTALK_MANAGED_ACTIONS_NAMESPACE
        OptionName == %ELASTIC_BEANSTALK_MANAGED_ACTIONS_OPTION_NAME
    ]
    %option_settings_with_managed_actions empty
}
}

rule check_option_settings_exists_and_is_non_empty_list(elastic_beanstalk_resource) {
  %elastic_beanstalk_resource {  
      OptionSettings exists
      OptionSettings is_list
      OptionSettings not empty
  }
}

rule check_option_settings_not_exists_or_is_empty_list(configuration_template) {
  %configuration_template {  
      OptionSettings not exists or
      check_is_empty_list(OptionSettings)
  }
}

rule check_is_empty_list(option_settings) {
  %option_settings {  
      this is_list
      this empty
  }
}

#  
# Utility Rules
# is_cfn_template rule

```haskell
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

# is_cfn_hook rule

```haskell
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

## CT.ELASTICBEANSTALK.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:**

- **InstanceRole:**
  - Type: `AWS::IAM::Role`
  - Properties:
    - AssumeRolePolicyDocument:
      - Version: "2012-10-17"
      - Statement:
        - Effect: Allow
          - Principal:
            - Service:
              - elasticbeanstalk.amazonaws.com
          - Action:
            - 'sts:AssumeRole'

- **InstanceProfile:**
  - Type: `AWS::IAM::InstanceProfile`
  - Properties:
    - Roles:
      - Ref: InstanceRole

- **App:**
  - Type: `AWS::ElasticBeanstalk::Application`

**ElasticBeanstalkConfigurationTemplate:**
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

InstanceRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: "2012-10-17"
      Statement:
        - Effect: Allow
          Principal:
            Service:
              - ec2.amazonaws.com
          Action:
            - 'sts:AssumeRole'

InstanceProfile:
  Type: AWS::IAM::InstanceProfile
  Properties:
    Roles:
      - Ref: InstanceRole

App:
  Type: AWS::ElasticBeanstalk::Application

ElasticBeanstalkEnvironment:
  Type: AWS::ElasticBeanstalk::Environment
  Properties:
    SolutionStackName: "64bit Amazon Linux 2 v3.4.0 running Python 3.8"
    ApplicationName:
      Ref: App
OptionSettings:
- Namespace: aws:autoscaling:launchconfiguration
  OptionName: IamInstanceProfile
  Value:
    Ref: InstanceProfile
- Namespace: aws:elasticbeanstalk:managedactions
  OptionName: ManagedActionsEnabled
  Value: false

[CT.ELASTICBEANSTALK.PR.3] Require an AWS Elastic Beanstalk environment to have a logging configuration

This control checks whether an AWS Elastic Beanstalk environment is configured to send logs to Amazon CloudWatch Logs.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticBeanstalk::Environment, AWS::ElasticBeanstalk::ConfigurationTemplate

**AWS CloudFormation guard rule:** [CT.ELASTICBEANSTALK.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICBEANSTALK.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.ELASTICBEANSTALK.PR.3 example templates](#)

**Explanation**

Monitoring is an important part of maintaining the reliability, availability, and performance of your AWS solutions. We recommend that you collect monitoring data from all of the parts of your AWS solution, so that you can debug a multi-point failure, if one occurs. From a security perspective, logging is an important feature to enable for future forensics efforts in the case of a security incident.
**Usage considerations**

- This control requires only enabling logging to Amazon CloudWatch Logs on AWS Elastic Beanstalk environments, because environment level settings take precedence over settings defined in configuration templates.
- This control does not allow explicitly disabling logging to Amazon CloudWatch Logs on AWS Elastic Beanstalk configuration templates.

**Remediation for rule failure**

For AWS Elastic Beanstalk environments, establish an OptionSetting with a Namespace set to `aws:elasticbeanstalk:cloudwatch:logs`, OptionName set to `StreamLogs`, and Value set to true. For Elastic Beanstalk configuration templates, establish an OptionSetting with a Namespace set to `aws:elasticbeanstalk:cloudwatch:logs`, OptionName set to `StreamLogs`, and Value set to true, or omit this OptionSetting.

The examples that follow show how to implement this remediation.

**AWS Elastic Beanstalk Environment - Example**

An AWS Elastic Beanstalk environment configured to stream logs to Amazon CloudWatch Logs by means of an entry in the OptionSettings property. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ElasticBeanstalkEnvironment": {
      "Type": "AWS::ElasticBeanstalk::Environment",
      "Properties": {
         "ApplicationName": {
            "Ref": "App"
         },
         "SolutionStackName": "64bit Amazon Linux 2 v3.4.1 running Python 3.8",
         "OptionSettings": [  
            {
               "Namespace": "aws:autoscaling:launchconfiguration",
               "OptionName": "IamInstanceProfile",
               "Value": {
                  "Ref": "InstanceProfile"
               }
            }
         ]
      }
   }
}
```
The examples that follow show how to implement this remediation.

**AWS Elastic Beanstalk Configuration Template - Example**

AWS Elastic Beanstalk configuration template configured to stream logs to Amazon CloudWatch Logs by means of an entry in the `OptionSettings` property. The example is shown in JSON and in YAML.

**JSON example**

```json
{

}
```

**YAML example**

```yaml
ElasticBeanstalkEnvironment:
  Type: AWS::ElasticBeanstalk::Environment
  Properties:
    ApplicationName: !Ref 'App'
    SolutionStackName: 64bit Amazon Linux 2 v3.4.1 running Python 3.8
    OptionSettings:
      - Namespace: aws:autoscaling:launchconfiguration
        OptionName: IamInstanceProfile
        Value: !Ref 'InstanceProfile'
      - Namespace: aws:elasticbeanstalk:cloudwatch:logs
        OptionName: StreamLogs
        Value: true
```
"ElasticBeanstalkConfigurationTemplate": {
  "Type": "AWS::ElasticBeanstalk::ConfigurationTemplate",
  "Properties": {
    "ApplicationName": {
      "Ref": "App"
    },
    "SolutionStackName": "64bit Amazon Linux 2 v3.4.1 running Python 3.8",
    "OptionSettings": [
      {
        "Namespace": "aws:autoscaling:launchconfiguration",
        "OptionName": "IamInstanceProfile",
        "Value": {
          "Ref": "InstanceProfile"
        }
      },
      {
        "Namespace": "aws:elasticbeanstalk:cloudwatch:logs",
        "OptionName": "StreamLogs",
        "Value": true
      }
    ]
  }
}
CT.ELASTICBEANSTALK.PR.3 rule specification

# #######################################################################
##       Rule Specification        ##
#######################################################################
#
# Rule Identifier:
#   elastic_beanstalk_logs_to_cloudwatch_check
#
# Description:
#   This control checks whether an AWS Elastic Beanstalk environment is configured to send logs to Amazon CloudWatch Logs.
#
# Reports on:
#   AWS::ElasticBeanstalk::Environment, AWS::ElasticBeanstalk::ConfigurationTemplate
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any ElasticBeanstalk environment resources or ElasticBeanstalk configuration template resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an ElasticBeanstalk environment resource
#     And: 'OptionSettings' is not present in the resource properties or is an empty list
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an ElasticBeanstalk environment resource
#     And: 'OptionSettings' is present in the resource properties as a non-empty list
And: No entry in the 'OptionSettings' list has both a 'Namespace' property with a value of 'aws:elasticbeanstalk:cloudwatch:logs' and an 'OptionName' property with a value of 'StreamLogs'
Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticBeanstalk environment resource or an ElasticBeanstalk configuration template resource
And: 'OptionSettings' is present in the resource properties as a non-empty list
And: An entry in the 'OptionSettings' list has a 'Namespace' property with a value of 'aws:elasticbeanstalk:cloudwatch:logs'
And: That same entry has an 'OptionName' property with a value of 'StreamLogs'
And: That same entry has a 'Value' property with a value of anything other than bool(true), or the 'Value' property is not provided.
Then: FAIL
Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticBeanstalk configuration template resource
And: 'OptionSettings' is not present in the resource properties or is an empty list
Then: PASS
Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticBeanstalk configuration template resource
And: 'OptionSettings' is present in the resource properties as a non-empty list
And: No entry in the 'OptionSettings' list has both a 'Namespace' property with a value of 'aws:elasticbeanstalk:cloudwatch:logs' and an 'OptionName' property with a value of 'StreamLogs'
Then: PASS
Scenario: 7
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticBeanstalk environment resource or an ElasticBeanstalk configuration template resource
And: 'OptionSettings' is not present in the resource properties or is an empty list
Then: PASS
configuration template resource
And: 'OptionSettings' is present in the resource properties as a non-empty list
And: Every entry in the 'OptionSettings' list that has both a 'Namespace' property with a value of
   'aws:elasticbeanstalk:cloudwatch:logs' and an 'OptionName' property with a value of 'StreamLogs'
   also has a 'Value' property with a value of bool(true)
Then: PASS

# Constants
let ELASTIC_BEANSTALK_ENVIRONMENT_TYPE = "AWS::ElasticBeanstalk::Environment"
let ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE = "AWS::ElasticBeanstalk::ConfigurationTemplate"
let ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_NAMESPACE = "aws:elasticbeanstalk:cloudwatch:logs"
let ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_OPTION_NAME = "StreamLogs"
let ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_ENABLED_VALUE = ["true", true]
let INPUT_DOCUMENT = this

# Assignments
let elastic_beanstalk_environments = Resources.*[ Type == %ELASTIC_BEANSTALK_ENVIRONMENT_TYPE ]
let elastic_beanstalk_configuration_templates = Resources.*[ Type == %ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE ]

# Primary Rules
rule elastic_beanstalk_logs_to_cloudwatch_check when is_cfn_template(%INPUT_DOCUMENT)
   %elastic_beanstalk_environments
not empty {
   check_elastic_beanstalk_environments(%elastic_beanstalk_environments.Properties)
   =>
   [CT.ELASTICBEANSTALK.PR.3]: Require an AWS Elastic Beanstalk environment to have a logging configuration
   [FIX]: For AWS Elastic Beanstalk environments, establish an 'OptionSetting' with a 'Namespace' set to 'aws:elasticbeanstalk:cloudwatch:logs', 'OptionName' set to 'StreamLogs', and 'Value' set to 'true'. For Elastic Beanstalk configuration templates, establish an 'OptionSetting' with a 'Namespace' set to
'aws:elasticbeanstalk:cloudwatch:logs', 'OptionName' set to 'StreamLogs', and 'Value' set to 'true', or omit this 'OptionSetting'.

>>
}

rule elastic_beanstalk_logs_to_cloudwatch_check when is_cfn_template(%INPUTDocumento
%elastic_beanstalk_configuration_templates not empty {

cHECK elastic_beanstalk_configuration_templates(%elastic_beanstalk_configuration_templates.Properties)
<<
[CT.ELASTICBEANSTALK.PR.3]: Require an AWS Elastic Beanstalk environment to have a logging configuration

[FIX]: For AWS Elastic Beanstalk environments, establish an 'OptionSetting' with a 'Namespace' set to 'aws:elasticbeanstalk:cloudwatch:logs', 'OptionName' set to 'StreamLogs', and 'Value' set to 'true'. For Elastic Beanstalk configuration templates, establish an 'OptionSetting' with a 'Namespace' set to 'aws:elasticbeanstalk:cloudwatch:logs', 'OptionName' set to 'StreamLogs', and 'Value' set to 'true', or omit this 'OptionSetting'.

>>
}

rule elastic_beanstalk_logs_to_cloudwatch_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_BEANSTALK_ENVIRONMENT_TYPE) {

check_elastic_beanstalk_environments(%INPUT_DOCUMENT.
%ELASTIC_BEANSTALK_ENVIRONMENT_TYPE.resourceProperties)
<<
[CT.ELASTICBEANSTALK.PR.3]: Require an AWS Elastic Beanstalk environment to have a logging configuration

[FIX]: For AWS Elastic Beanstalk environments, establish an 'OptionSetting' with a 'Namespace' set to 'aws:elasticbeanstalk:cloudwatch:logs', 'OptionName' set to 'StreamLogs', and 'Value' set to 'true'. For Elastic Beanstalk configuration templates, establish an 'OptionSetting' with a 'Namespace' set to 'aws:elasticbeanstalk:cloudwatch:logs', 'OptionName' set to 'StreamLogs', and 'Value' set to 'true', or omit this 'OptionSetting'.

>>
}

rule elastic_beanstalk_logs_to_cloudwatch_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE) {

check_elastic_beanstalk_configuration_templates(%INPUT_DOCUMENT.
%ELASTIC_BEANSTALK_CONFIGURATION_TEMPLATE_TYPE.resourceProperties)
<<
[CT.ELASTICBEANSTALK.PR.3]: Require an AWS Elastic Beanstalk environment to have a logging configuration

[FIX]: For AWS Elastic Beanstalk environments, establish an 'OptionSetting' with a 'Namespace' set to 'aws:elasticbeanstalk:cloudwatch:logs', 'OptionName' set to 'StreamLogs', and 'Value' set to 'true'. For Elastic Beanstalk configuration templates, establish an 'OptionSetting' with a 'Namespace' set to 'aws:elasticbeanstalk:cloudwatch:logs', 'OptionName' set to 'StreamLogs', and 'Value' set to 'true', or omit this 'OptionSetting'.

```yaml
rule check_elastic_beanstalk_environments(elastic_beanstalk_environments) {
  %elastic_beanstalk_environments {
    # Scenario 2
    check_option_settings_exists_and_is_non_empty_list(this)

    # Scenario 3, 4, 7
    check_option_settings_cloudwatch_logs_enabled(OptionSettings[*])
  }
}
```

```yaml
rule check_elastic_beanstalk_configuration_templates(elastic_beanstalk_configuration_templates) {
  %elastic_beanstalk_configuration_templates {
    # Scenario 7
    check_option_settings_with_cloudwatch_logs_enabled(this) or
    # Scenario 6
    check_option_settings_without_cloudwatch_logs(this) or
    # Scenario 5
    check_option_settings_not_exists_or_is_empty_list(this)
  }
}
```

```yaml
rule check_option_settings_with_cloudwatch_logs_enabled(elastic_beanstalk_configuration_templates) {
  %elastic_beanstalk_configuration_templates [
    filter_option_settings_with_cloudwatch_logs_enabled(this)
  ] {
    check_option_settings_cloudwatch_logs_enabled(OptionSettings[*])
  }
}
```
rule
filter_option_settings_with_cloudwatch_logs(elastic_beanstalk_configuration_templates)
{
  some %elastic_beanstalk_configuration_templates {
    check_option_settings_exists_and_is_non_empty_list(this)

    some OptionSettings[*] {
      Namespace exists
      OptionName exists

      Namespace == %ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_NAMESPACE
      OptionName == %ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_OPTION_NAME
    }
  }
}

rule check_option_settings_cloudwatch_logs_enabled(option_settings) {
  # Scenario 3, 4
  some %option_settings[*] {
    Namespace exists
    OptionName exists
    Value exists

    Namespace == %ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_NAMESPACE
    OptionName == %ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_OPTION_NAME
    Value in %ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_ENABLED_VALUE
  }

  # Scenario 7
  let option_setting_duplicates = OptionSettings [ 
    Namespace exists
    OptionName exists
    Value exists

    Namespace == %ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_NAMESPACE
    OptionName == %ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_OPTION_NAME
    Value not in %ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_ENABLED_VALUE
  ]
  %option_setting_duplicates empty
}
rule
check_option_settings_without_cloudwatch_logs(elastic_beanstalk_configuration_templates)
{
    some %elastic_beanstalk_configuration_templates {
        check_option_settings_exists_and_is_non_empty_list(this)

        let option_settings_with_cloudwatch_logs = OptionSettings [
            Namespace exists
            OptionName exists

            Namespace == %ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_NAMESPACE
            OptionName == %ELASTIC_BEANSTALK_CLOUDWATCH_LOGS_OPTION_NAME
        ]
        %option_settings_with_cloudwatch_logs empty
    }
}

rule check_option_settings_exists_and_is_non_empty_list(elastic_beanstalk_resource) {
    %elastic_beanstalk_resource {
        OptionSettings exists
        OptionSettings is_list
        OptionSettings not empty
    }
}

rule check_option_settings_not_exists_or_is_empty_list(configuration_template) {
    %configuration_template {
        OptionSettings not exists or
        check_is_empty_list(OptionSettings)
    }
}

rule check_is_empty_list(option_settings) {
    %option_settings {
        this is_list
        this empty
    }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {

CT.ELASTICBEANSTALK.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
InstanceRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service:
              - elasticbeanstalk.amazonaws.com
          Action:
            - sts:AssumeRole
InstanceProfile:
  Type: AWS::IAM::InstanceProfile
  Properties:
    Roles:
      - Ref: InstanceRole
App:
  Type: AWS::ElasticBeanstalk::Application
  Properties: {}
ElasticBeanstalkEnvironment:
  Type: AWS::ElasticBeanstalk::Environment
Properties:
  ApplicationName:
    Ref: App
SolutionStackName: 64bit Amazon Linux 2 v3.4.1 running Python 3.8
OptionSettings:
  - Namespace: aws:autoscaling:launchconfiguration
    OptionName: IamInstanceProfile
    Value:
      Ref: InstanceProfile
  - Namespace: aws:elasticbeanstalk:cloudwatch:logs
    OptionName: StreamLogs
    Value: true

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  InstanceRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Principal:
              Service:
                - elasticbeanstalk.amazonaws.com
            Action:
              - sts:AssumeRole
  InstanceProfile:
    Type: AWS::IAM::InstanceProfile
    Properties:
      Roles:
        - Ref: InstanceRole
  App:
    Type: AWS::ElasticBeanstalk::Application
    Properties: {}
  ElasticBeanstalkConfigurationTemplate:
    Type: AWS::ElasticBeanstalk::ConfigurationTemplate
    Properties:
      ApplicationName:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  InstanceRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Principal:
              Service:
                - elasticbeanstalk.amazonaws.com
            Action:
              - sts:AssumeRole
  InstanceProfile:
    Type: AWS::IAM::InstanceProfile
    Properties:
      Roles:
        - Ref: InstanceRole
  App:
    Type: AWS::ElasticBeanstalk::Application
    Properties: {}
  ElasticBeanstalkEnvironment:
    Type: AWS::ElasticBeanstalk::Environment
    Properties:
      ApplicationName:
        Ref: App
SolutionStackName: 64bit Amazon Linux 2 v3.4.1 running Python 3.8
OptionSettings:
- Namespace: aws:autoscaling:launchconfiguration
  OptionName: IamInstanceProfile
  Value:
    Ref: InstanceProfile

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  InstanceRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
        - Effect: Allow
          Principal:
            Service:
              - elasticbeanstalk.amazonaws.com
            Action:
              - sts:AssumeRole
  InstanceProfile:
    Type: AWS::IAM::InstanceProfile
    Properties:
      Roles:
        - Ref: InstanceRole
  App:
    Type: AWS::ElasticBeanstalk::Application
    Properties: {}
  ElasticBeanstalkConfigurationTemplate:
    Type: AWS::ElasticBeanstalk::ConfigurationTemplate
    Properties:
      ApplicationName:
        Ref: App
      SolutionStackName: 64bit Amazon Linux 2 v3.4.1 running Python 3.8
      OptionSettings:
        - Namespace: aws:autoscaling:launchconfiguration
          OptionName: IamInstanceProfile
Value:
  Ref: InstanceProfile
- Namespace: aws:elasticbeanstalk:cloudwatch:logs
  OptionName: StreamLogs
  Value: false

Amazon Elastic Compute Cloud (Amazon EC2) controls

Topics

- **[CT.EC2.PR.1]** Require an Amazon EC2 launch template to have IMDSv2 configured
- **[CT.EC2.PR.2]** Require that Amazon EC2 launch templates restrict the token hop limit to a maximum of one
- **[CT.EC2.PR.3]** Require that any Amazon EC2 security group rule does not use the source IP range 0.0.0.0/0 or ::/0 for ports other than 80 and 443
- **[CT.EC2.PR.4]** Require that any Amazon EC2 security group rule does not use the source IP range 0.0.0.0/0 or ::/0 for specific high-risk ports
- **[CT.EC2.PR.5]** Require any Amazon EC2 network ACL to prevent ingress from 0.0.0.0/0 to port 22 or port 3389
- **[CT.EC2.PR.6]** Require that Amazon EC2 transit gateways refuse automatic Amazon VPC attachment requests
- **[CT.EC2.PR.7]** Require an Amazon EBS volume resource to be encrypted at rest when defined by means of the AWS::EC2::Instance BlockDeviceMappings property or AWS::EC2::Volume resource type
- **[CT.EC2.PR.8]** Require an Amazon EC2 instance to set AssociatePublicIpAddress to false on a new network interface created by means of the NetworkInterfaces property in the AWS::EC2::Instance resource
- **[CT.EC2.PR.9]** Require any Amazon EC2 launch template not to auto-assign public IP addresses to network interfaces
- **[CT.EC2.PR.10]** Require Amazon EC2 launch templates to have Amazon CloudWatch detailed monitoring activated
- **[CT.EC2.PR.11]** Require that an Amazon EC2 subnet does not automatically assign public IP addresses
[CT.EC2.PR.12] Require an Amazon EC2 instance to specify at most one network interface by means of the NetworkInterfaces property in the AWS::EC2::Instance resource

[CT.EC2.PR.13] Require an Amazon EC2 instance to have detailed monitoring enabled

[CT.EC2.PR.14] Require an Amazon EBS volume configured through an Amazon EC2 launch template to encrypt data at rest

[CT.EC2.PR.15] Require an Amazon EC2 instance to use an AWS Nitro instance type when creating from the 'AWS::EC2::LaunchTemplate' resource type

[CT.EC2.PR.16] Require an Amazon EC2 instance to use an AWS Nitro instance type when created using the 'AWS::EC2::Instance' resource type

[CT.EC2.PR.17] Require an Amazon EC2 dedicated host to use an AWS Nitro instance type

[CT.EC2.PR.18] Require an Amazon EC2 fleet to override only those launch templates with AWS Nitro instance types

[CT.EC2.PR.19] Require an Amazon EC2 instance to use an AWS Nitro instance type that supports encryption in-transit between instances when created using the AWS::EC2::Instance resource type

[CT.EC2.PR.20] Require an Amazon EC2 fleet to override only those launch templates with AWS Nitro instance types that support encryption in transit between instances

[CT.EC2.PR.1] Require an Amazon EC2 launch template to have IMDSv2 configured

This control checks whether your Amazon EC2 launch templates are configured with Instance Metadata Service Version 2 (IMDSv2).

- **Control objective:** Enforce least privilege, Protect configurations
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::LaunchTemplate
- **AWS CloudFormation guard rule:** [CT.EC2.PR.1 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.1 rule specification](#)
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.EC2.PR.1 example templates

Explanation

Instance metadata configures and manages your running instances. The IMDS provides access to temporary, frequently rotated credentials, so you don't need to distribute sensitive credentials to instances, either manually or programmatically. The IMDS is attached locally to every EC2 instance. It runs on a special IP address of 169.254.169.254. This IP address is accessible only to software that runs on the instance.

Version 2 of the IMDS adds protections for vulnerabilities that can be used to gain access to the IMDS: Open website application firewalls, Open reverse proxies, Server-side request forgery (SSRF) vulnerabilities and Open Layer 3 firewalls and network address translation (NAT).

AWS Control Tower recommends that you configure your EC2 instances with IMDSv2.

Usage considerations

• This control applies only to Amazon EC2 launch templates that allow access to instance metadata.

Remediation for rule failure

Within the LaunchTemplateData property, provide a MetadataOptions configuration and set the value of HttpTokens to required.

The examples that follow show how to implement this remediation.

Amazon EC2 Launch Template - Example

Amazon EC2 launch template configured with IMDSv2 activated. The example is shown in JSON and in YAML.

JSON example

```json
{
   "EC2LaunchTemplate": {
```
YAML example

```yaml
EC2LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      InstanceType: t3.micro
      ImageId: !Ref 'LatestAmiId'
      MetadataOptions:
        HttpTokens: required
```

CT.EC2.PR.1 rule specification

```plaintext
# ###################################
##       Rule Specification        ##
#####################################
#
# Rule Identifier:
#   ec2_launch_template_imdsv2_check
#
# Description:
#   This control checks whether your Amazon EC2 launch templates are configured with
#   Instance Metadata Service Version 2 (IMDSv2).
```
# Reports on:
#   AWS::EC2::LaunchTemplate
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any EC2 launch template resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EC2 launch template resource
#     And: 'LaunchTemplateData' has not been provided or
#       'LaunchTemplateData.MetadataOptions.HttpEndpoint' has
#         been provided and is equal to 'disabled'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EC2 launch template resource
#     And: 'LaunchTemplateData' has been provided
#     And: 'MetadataOptions.HttpEndpoint' in 'LaunchTemplateData' has not been
#         provided or has been provided and
#         is equal to 'enabled'
#     And: 'MetadataOptions.HttpTokens' in 'LaunchTemplateData' has not been provided
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EC2 launch template resource
#     And: 'LaunchTemplateData' has been provided
#     And: 'MetadataOptions.HttpEndpoint' in 'LaunchTemplateData' has not been
#         provided or has been provided and
#         is equal to 'enabled'
#     And: 'MetadataOptions.HttpTokens' in 'LaunchTemplateData' has been provided and
#         set to a value other than 'required'
Then: FAIL
Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an EC2 launch template resource
And: 'LaunchTemplateData' has been provided
And: 'MetadataOptions.HttpEndpoint' in 'LaunchTemplateData' has not been
provided or has been provided and
is equal to 'enabled'
And: 'MetadataOptions.HttpTokens' in 'LaunchTemplateData' has been provided and
set to 'required'
Then: PASS

Constants

let EC2_LAUNCH_TEMPLATE_TYPE = "AWS::EC2::LaunchTemplate"
let INPUT_DOCUMENT = this

Assignments

let ec2_launch_templates = Resources.*[ Type == %EC2_LAUNCH_TEMPLATE_TYPE ]

Primary Rules

rule ec2_launch_template_imdsv2_check when is_cfn_template(%INPUT_DOCUMENT)
%ec2_launch_templates not empty {
  check(%ec2_launch_templates.Properties)
  %ec2_launch_templates not empty {
    [CT.EC2.PR.1]: Require an Amazon EC2 launch template to have IMDSv2 configured
    [FIX]: Within the 'LaunchTemplateData' property, provide a
    'MetadataOptions' configuration and set the value of 'HttpTokens' to 'required'.
  }
}

rule ec2_launch_template_imdsv2_check when is_cfn_hook(%INPUT_DOCUMENT,
%EC2_LAUNCH_TEMPLATE_TYPE) {
  check(%INPUT_DOCUMENT.%EC2_LAUNCH_TEMPLATE_TYPE.resourceProperties)
  [CT.EC2.PR.1]: Require an Amazon EC2 launch template to have IMDSv2 configured
  [FIX]: Within the 'LaunchTemplateData' property, provide a
  'MetadataOptions' configuration and set the value of 'HttpTokens' to 'required'.
}

Proactive controls
# Parameterized Rules

rule check(launch_template) {
  %launch_template [
    # Scenario 2
    filter_launch_template_imds_enabled(this)
  ] {
    LaunchTemplateData exists
    LaunchTemplateData is_struct
    LaunchTemplateData {
      # Scenario 3, 4 and 5
      MetadataOptions exists
      MetadataOptions is_struct
      MetadataOptions {
        HttpTokens exists
        HttpTokens == "required"
      }
    }
  }
}

rule filter_launch_template_imds_enabled(launch_template) {
  %launch_template {
    LaunchTemplateData exists
    LaunchTemplateData is_struct
    LaunchTemplateData {
      MetadataOptions not exists or
      filter_metadata_options_imds_enabled(this)
    }
  }
}

rule filter_metadata_options_imds_enabled(metadata_options) {
  %metadata_options {
    MetadataOptions is_struct
    MetadataOptions {
      HttpEndpoint not exists or
      HttpEndpoint == "enabled"
    }
  }
}
# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.EC2.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:

LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:

EC2LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      InstanceType: t3.micro
      ImageId:
        Ref: LatestAmiId
    MetadataOptions:
      HttpTokens: required
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
- LatestAmiId:
  - Description: Region specific latest AMI ID from the Parameter Store
  - Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
  - Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
- EC2LaunchTemplate:
  - Type: AWS::EC2::LaunchTemplate
  - Properties:
    - LaunchTemplateData:
      - InstanceType: t3.micro
      - ImageId:
        - Ref: LatestAmiId
      - MetadataOptions:
        - HttpTokens: optional

[CT.EC2.PR.2] Require that Amazon EC2 launch templates restrict the token hop limit to a maximum of one

This control checks whether an Amazon EC2 launch template has a metadata token hop limit set to 1.

- **Control objective:** Enforce least privilege, Protect configurations
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::LaunchTemplate
- **AWS CloudFormation guard rule:** [CT.EC2.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.2 rule specification](#)
For examples of PASS and FAIL CloudFormation Templates related to this control, see:

CT.EC2.PR.2 example templates

Explanation

The Amazon Instance Metadata Service (IMDS) provides metadata information about an Amazon EC2 instance, which is useful for application configuration. Restricting the HTTP PUT response for the metadata service to the EC2 instance protects the IMDS from unauthorized use.

The Time To Live (TTL) field in the IP packet is reduced by one on every hop. This reduction can be used to ensure that the packet does not travel outside EC2. IMDSv2 protects EC2 instances that may have been misconfigured as open routers, layer 3 firewalls, VPNs, tunnels, or NAT devices, which prevents unauthorized users from retrieving metadata. With IMDSv2, the PUT response that contains the secret token cannot travel outside the instance, because the default metadata response hop limit is set to 1. However, if this value is greater than 1, the token can leave the EC2 instance.

Usage considerations

- This control applies only to Amazon EC2 launch templates that allow access to instance metadata.
- This control is incompatible with Amazon EC2 launch templates that require a token hop limit of 2.

Remediation for rule failure

Within the LaunchTemplateData property, provide a MetadataOptions configuration with the value of HttpPutResponseLimit set to 1, or omit the HttpPutResponseLimit property to adopt the AWS CloudFormation default value of 1.

The examples that follow show how to implement this remediation.

Amazon EC2 Launch Template - Example One

Amazon EC2 launch template configured with access to instance metadata enabled and a token hop limit of 1, set by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.
The examples that follow show how to implement this remediation.

Amazon EC2 Launch Template - Example Two

Amazon EC2 launch template configured with access to instance metadata enabled and a token hop limit of 1, set by means of the MetadataOptions property. The example is shown in JSON and in YAML.

JSON example

```json
{
    "EC2LaunchTemplate": {
        "Type": "AWS::EC2::LaunchTemplate",
        "Properties": {
            "LaunchTemplateData": {
                "MetadataOptions": {
                    "HttpEndpoint": "enabled"
                }
            }
        }
    }
}
```

YAML example

```yaml
EC2LaunchTemplate:
    Type: AWS::EC2::LaunchTemplate
    Properties:
        LaunchTemplateData:
            MetadataOptions:
                HttpEndpoint: enabled
```

The examples that follow show how to implement this remediation.

Amazon EC2 Launch Template - Example Two

Amazon EC2 launch template configured with access to instance metadata enabled and a token hop limit of 1, set by means of the MetadataOptions property. The example is shown in JSON and in YAML.

JSON example

```json
{
    "EC2LaunchTemplate": {
        "Type": "AWS::EC2::LaunchTemplate",
```
"Properties": {
  "LaunchTemplateData": {
    "MetadataOptions": {
      "HttpEndpoint": "enabled",
      "HttpPutResponseHopLimit": 1
    }
  }
}

YAML example

EC2LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
Properties:
  LaunchTemplateData:
    MetadataOptions:
      HttpEndpoint: enabled
      HttpPutResponseHopLimit: 1

CT.EC2.PR.2 rule specification

# ###################################################################
##       Rule Specification        ##
# # Rule Identifier: # ec2_launch_template_token_hop_limit_check # # Description: # This control checks whether an Amazon EC2 launch template has a metadata token hop limit set to '1'. # # Reports on: # AWS::EC2::LaunchTemplate # # Evaluates:
# AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any EC2 launch template resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EC2 launch template resource
# And: 'LaunchTemplateData.MetadataOptions' has been provided
# And: 'LaunchTemplateData.MetadataOptions.HttpEndpoint' has been provided and is equal to 'disabled'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EC2 launch template resource
# And: 'LaunchTemplateData.MetadataOptions' has been provided
# And: 'LaunchTemplateData.MetadataOptions.HttpEndpoint' has not been provided or has been provided and is equal to 'enabled'
# And: 'LaunchTemplateData.MetadataOptions.HttpPutResponseHopLimit' has been provided and is not equal to an integer of 1.
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EC2 launch template resource
# And: 'LaunchTemplateData.MetadataOptions' has not been provided
# Then: PASS
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EC2 launch template resource
# And: 'LaunchTemplateData.MetadataOptions' has been provided
# And: 'LaunchTemplateData.MetadataOptions.HttpEndpoint' has not been provided or has been provided and is

Proactive controls
equal to 'enabled'
And: 'LaunchTemplateData.MetadataOptions.HttpPutResponseHopLimit' has not been provided
Then: PASS

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an EC2 launch template resource
And: 'LaunchTemplateData.MetadataOptions' has been provided
And: 'LaunchTemplateData.MetadataOptions.HttpEndpoint' has not been provided or has been provided and is equal to 'enabled'
And: 'LaunchTemplateData.MetadataOptions.HttpPutResponseHopLimit' has been provided and is equal to an integer of 1.
Then: PASS

# Constants
let EC2_LAUNCH_TEMPLATE_TYPE = "AWS::EC2::LaunchTemplate"
let INPUT_DOCUMENT = this

# Assignments
let ec2_launch_templates = Resources.*[ Type == %EC2_LAUNCH TEMPLATE TYPE ]

# Primary Rules
rule ec2_launch_template_token_hop_limit_check when is_cfn_template(this)
  %ec2_launch_templates not empty {
    check(%ec2_launch_templates.Properties)
    [CT.EC2.PR.2]: Require that Amazon EC2 launch templates restrict the token hop limit to a maximum of one
    [FIX]: Within the 'LaunchTemplateData' property, provide a 'MetadataOptions' configuration with the value of 'HttpPutResponseLimit' set to '1', or omit the 'HttpPutResponseLimit' property to adopt the AWS CloudFormation default value of '1'.
  }
}
rule ec2_launch_template_token_hop_limit_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_LAUNCH_TEMPLATE_TYPE) {
    check(%INPUT_DOCUMENT.%EC2_LAUNCH_TEMPLATE_TYPE.resourceProperties)
    <<
    [CT.EC2.PR.2]: Require that Amazon EC2 launch templates restrict the token hop limit to a maximum of one
    [FIX]: Within the 'LaunchTemplateData' property, provide a 'MetadataOptions' configuration with the value of 'HttpPutResponseLimit' set to '1', or omit the 'HttpPutResponseLimit' property to adopt the AWS CloudFormation default value of '1'.
    >>
}
#
# Parameterized Rules
#
rule check(ec2_launch_template) {
    %ec2_launch_template[
        # Scenario 2, 3 and 4
        filter_launch_template(this)
    ] {
        # Scenario 5 and 6
        LaunchTemplateData {
            MetadataOptions not exists or
            MetadataOptions {
                HttpPutResponseHopLimit not exists or
                HttpPutResponseHopLimit == 1
            }
        }
    }
}

rule filter_launch_template(ec2_launch_template) {
    %ec2_launch_template {
        LaunchTemplateData exists
        LaunchTemplateData is_struct
        LaunchTemplateData {
            MetadataOptions not exists or
            filter_metadata_options_provided(this)
        }
    }
}

rule filter_metadata_options_provided(options) {
%options {
    MetadataOptions is_struct
    MetadataOptions {
        HttpEndpoint not exists or
        HttpEndpoint == "enabled"
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.EC2.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:

LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:

EC2LaunchTemplate:
    Type: AWS::EC2::LaunchTemplate
    Properties:
        LaunchTemplateData:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

   EC2LaunchTemplate:
       Type: AWS::EC2::LaunchTemplate
       Properties:
           LaunchTemplateData:
               MetadataOptions:
                   HttpPutResponseHopLimit: 2

[CT.EC2.PR.3] Require that any Amazon EC2 security group rule does not use the source IP range 0.0.0.0/0 or ::/0 for ports other than 80 and 443

This control checks whether an Amazon EC2 security group rule contains the string 0.0.0.0/0 or ::/0 as a source IP range. This control is not triggered if a rule allows connection to port 80 or 443 with TCP, UDP, ICMP, or ICMPv6. The use of managed prefix lists is not supported.

- Control objective: Limit network access
- Implementation: AWS CloudFormation Guard Rule
- Control behavior: Proactive
- Resource types: AWS::EC2::SecurityGroup, AWS::EC2::SecurityGroupIngress
- AWS CloudFormation guard rule: [CT.EC2.PR.3 rule specification]

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.3 rule specification]
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.EC2.PR.3 example templates]
Explaination

Security groups provide stateful filtering of ingress and egress network traffic to AWS resources. Disallowing usage of the strings 0.0.0.0/0 or ::/0 helps protect against this common misconfiguration and encourages users to choose a range aligned with least-privilege principles.

AWS recommends a layered approach, to ensure that network access is provided only as necessary for your business requirements. Security group rules should follow the principle of least privileged access. Unrestricted access increases the opportunity for malicious activity. Unless a port is specifically allowed, the port should deny unrestricted access (any IP address with a /0 suffix).

Usage considerations

- This control applies only to Amazon EC2 security group and EC2 security group ingress resources with ingress rules that allow inbound traffic from 0.0.0.0/0 or ::/0
- This control does not allow use of the SourcePrefixListId property on Amazon EC2 Security Group and Amazon EC2 Security Group Ingress resources.

Remediation for rule failure

Ensure that security groups with ingress rules that allow TCP or UDP traffic from 0.0.0.0/0 or ::/0 allow traffic from ports 80 or 443 only.

The use of managed prefix lists is not supported.

The examples that follow show how to implement this remediation.

Amazon EC2 Security Group - Example One

Amazon EC2 Security Group allowing inbound TCP traffic from 0.0.0.0/0 on port 80. The example is shown in JSON and in YAML.

JSON example

```json
{
  "SecurityGroup": {
    "Type": "AWS::EC2::SecurityGroup",
    "Properties": {
      "GroupDescription": {
```
The examples that follow show how to implement this remediation.

**Amazon EC2 Security Group - Example Two**

Amazon EC2 Security Group allowing inbound TCP traffic from 0.0.0.0/0 on port 443. The example is shown in JSON and in YAML.

### JSON example

```
{
  "SecurityGroup": {
    "Type": "AWS::EC2::SecurityGroup",
    "IpProtocol": "tcp",
    "CidrIp": "0.0.0.0/0",
    "FromPort": 80,
    "ToPort": 80
  }
}
```

### YAML example

```
SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: !Sub '${AWS::StackName}-example'
    SecurityGroupIngress:
      - IpProtocol: tcp
        CidrIp: '0.0.0.0/0'
        FromPort: 80
        ToPort: 80
```
"Properties": {
    "GroupDescription": {
        "Fn::Sub": "${AWS::StackName}-example"
    },
    "SecurityGroupIngress": [
        {
            "IpProtocol": "tcp",
            "CidrIp": "0.0.0.0/0",
            "FromPort": 443,
            "ToPort": 443
        }
    ]
}

YAML example

SecurityGroup:
    Type: AWS::EC2::SecurityGroup
    Properties:
        GroupDescription: !Sub '${AWS::StackName}-example'
        SecurityGroupIngress:
            - IpProtocol: tcp
              CidrIp: '0.0.0.0/0'
              FromPort: 443
              ToPort: 443

CT.EC2.PR.3 rule specification

# #####################################################################
## Rule Specification       ##
# #####################################################################
#
# Rule Identifier:
# vpc_sg_open_only_to_authorized_ports_check
#
# Description:
This control checks whether the Amazon EC2 security group contains the string '0.0.0.0/0' or '::/0' as a source IP range.
This control is not triggered if a rule allows connection to port 80 or 443 with TCP, UDP, ICMP, or ICMPv6.

Reports on:
AWS::EC2::SecurityGroup, AWS::EC2::SecurityGroupIngress

Evaluates:
AWS CloudFormation, AWS CloudFormation hook

Rule Parameters:
None

Scenarios:
Scenario: 1
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document does not contain any Amazon EC2 security group or EC2 security group ingress resources
Then: SKIP
Scenario: 2
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains an Amazon EC2 security group resource or EC2 security group ingress resource
And: The EC2 security group or EC2 security group ingress resource does not allow inbound traffic from a source prefix list and has no rules allowing inbound traffic from source '0.0.0.0/0' or '::/0'
Then: SKIP
Scenario: 3
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains an Amazon EC2 security group resource or EC2 security group ingress resource
And: The EC2 security group or EC2 security group ingress resource has rules allowing inbound traffic
from a source prefix list, or source '0.0.0.0/0' or '::/0'
And: The EC2 security group or EC2 security group ingress resource has a rule that allows all traffic
('IpProtocol' is set to '-1' or another protocol number)
Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains an Amazon EC2 security group resource or EC2 security group ingress resource
And: The EC2 security group or EC2 security group ingress resource has rules allowing inbound traffic
from a source prefix list, or source '0.0.0.0/0' or '::/0'
And: The EC2 security group or EC2 security group ingress resource has no rules that allow all traffic
('IpProtocol' is not set to '-1' or another protocol number)
And: Ports allowed are not in the list of allowed ports
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains an Amazon EC2 security group resource or EC2 security group ingress resource
And: The EC2 security group or EC2 security group ingress resource has rules allowing inbound traffic
from a source prefix list, or source '0.0.0.0/0' or '::/0'
And: The EC2 security group or EC2 security group ingress resource has no rules that allow all traffic
('IpProtocol' is not set to '-1' or another protocol number)
And: Ports allowed are in the list of allowed ports
Then: PASS

# Constants
let SECURITY_GROUP_TYPE = "AWS::EC2::SecurityGroup"
let SECURITY_GROUP_INGRESS_TYPE = AWS::EC2::SecurityGroupIngress"
let ALLOWED_PORTS = [80, 443]
let AUTHORIZED_PROTOCOLS = ["tcp", "udp", "icmp", "icmpv6"]
let UNRESTRICTED_IPV4_RANGES = ["0.0.0.0/0"]
let UNRESTRICTED_IPV6_RANGES = ["::/0"]
let INPUT_DOCUMENT = this

# Assignments
let ec2_security_groups = Resources[
    Type == %SECURITY_GROUP_TYPE
]
let ec2_security_group_ingress_rules = Resources[
Type == %SECURITY_GROUP_INGRESS_TYPE
]

# # Primary Rules #
rule vpc_sg_open_only_to_authorized_ports_check when is_cfn_template(%INPUT_DOCUMENT)
    %ec2_security_groups not empty {
        check_security_group(%ec2_security_groups.Properties)
        
        [CT.EC2.PR.3]: Require that any Amazon EC2 security group rule does not use the
        source IP range 0.0.0.0/0 or ::/0 for ports other than 80 and 443
        [FIX]: Ensure that security groups with ingress rules that allow TCP or UDP
        traffic from '0.0.0.0/0' or '::/0' only allow traffic to ports 80 or 443. The use of
        managed prefix lists is not supported.
        
    }

rule vpc_sg_open_only_to_authorized_ports_check when is_cfn_template(%INPUT_DOCUMENT)
    %ec2_security_group_ingress_rules not empty {
        check_ingress_rule(%ec2_security_group_ingress_rules.Properties)
        
        [CT.EC2.PR.3]: Require that any Amazon EC2 security group rule does not use the
        source IP range 0.0.0.0/0 or ::/0 for ports other than 80 and 443
        [FIX]: Ensure that security groups with ingress rules that allow TCP or UDP
        traffic from '0.0.0.0/0' or '::/0' only allow traffic to ports 80 or 443. The use of
        managed prefix lists is not supported.
        
    }

rule vpc_sg_open_only_to_authorized_ports_check when is_cfn_hook(%INPUT_DOCUMENT,
    %SECURITY_GROUP_TYPE) {
        check_security_group(%INPUT_DOCUMENT.%SECURITY_GROUP_TYPE.resourceProperties)
        
        [CT.EC2.PR.3]: Require that any Amazon EC2 security group rule does not use the
        source IP range 0.0.0.0/0 or ::/0 for ports other than 80 and 443
        [FIX]: Ensure that security groups with ingress rules that allow TCP or UDP
        traffic from '0.0.0.0/0' or '::/0' only allow traffic to ports 80 or 443. The use of
        managed prefix lists is not supported.
        
    }
rule vpc_sg_open_only_to_authorized_ports_check when is_cfn_hook(%INPUT_DOCUMENT, %SECURITY_GROUP_INGRESS_TYPE) {

    check_ingress_rule(%INPUT_DOCUMENT.%SECURITY_GROUP_INGRESS_TYPE.resourceProperties)
    <=
    [CT.EC2.PR.3]: Require that any Amazon EC2 security group rule does not use the source IP range 0.0.0.0/0 or ::/0 for ports other than 80 and 443
    [FIX]: Ensure that security groups with ingress rules that allow TCP or UDP traffic from '0.0.0.0/0' or '::/0' only allow traffic to ports 80 or 443. The use of managed prefix lists is not supported.
    >>
}

# # Parameterized Rules
#
rule check_security_group(security_group) {
    %security_group [  
        SecurityGroupIngress exists  
        SecurityGroupIngress is_list  
        SecurityGroupIngress not empty  
    ] {
        SecurityGroupIngress[*] {
            check_ingress_rule(this)
        }
    }
}

rule check_ingress_rule(ingress_rule) {
    %ingress_rule[ CidrIp in %UNRESTRICTED_IPV4_RANGES or  
        CidrIpv6 in %UNRESTRICTED_IPV6_RANGES or  
        SourcePrefixListId exists ] {
        # Scenario 3  
        IpProtocol exists  
        IpProtocol in %AUTHORIZED_PROTOCOLS

        when IpProtocol in ["tcp", "udp"] {
            FromPort exists  
            ToPort exists  
            # Scenarios 4 and 5  
            check_ports(FromPort, ToPort)
        }
}
CT.EC2.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: 
      Fn::Sub: ${AWS::StackName}-example
    SecurityGroupIngress:
      - IpProtocol: tcp
        CidrIp: 0.0.0.0/0
        FromPort: 80
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

PrefixList:
  Type: AWS::EC2::PrefixList
  Properties:
    PrefixListName:
      Fn::Sub: ${AWS::StackName}-example
    AddressFamily: IPv4
    MaxEntries: 10
    Entries:
      - Cidr: "0.0.0.0/0"
        Description: Public internet

SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription:
      Fn::Sub: ${AWS::StackName}-example

SecurityGroupIngress:
  Type: AWS::EC2::SecurityGroupIngress
  Properties:
    GroupId:
      Fn::GetAtt: [ SecurityGroup, GroupId ]
    IpProtocol: -1
    SourcePrefixListId:
      Ref: PrefixList

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

SecurityGroup:
  Type: AWS::EC2::SecurityGroup
[CT.EC2.PR.4] Require that any Amazon EC2 security group rule does not use the source IP range 0.0.0.0/0 or ::/0 for specific high-risk ports

This control checks whether an Amazon EC2 security group rule that contains the strings 0.0.0.0/0 or ::/0 as a source IP range does not allow incoming TCP, UDP, ICMP, or ICMPv6 traffic to the following ports: 3389, 20, 23, 110, 143, 3306, 8080, 1433, 9200, 9300, 25, 445, 135, 21, 1434, 4333, 5432, 5500, 5601, 22, 3000, 5000, 8088, 8888. The use of managed prefix lists is not supported.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::SecurityGroup, AWS::EC2::SecurityGroupIngress
- **AWS CloudFormation guard rule:** [CT.EC2.PR.4 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EC2.PR.4 example templates](#)
Security groups provide stateful filtering of ingress and egress network traffic to AWS resources. Disallowing usage of the strings 0.0.0.0/0 or ::/0 helps protect against this common misconfiguration and encourages users to choose a range aligned with least-privilege principles.

AWS recommends a layered approach, to ensure that network access is provided only as necessary for your business requirements. No security group should allow unrestricted ingress access to the following ports:

3389, 20, 23, 110, 143, 3306, 8080, 1433, 9200, 9300, 25, 445, 135, 21, 1434, 4333, 5432, 5500, 5601, 22, 3000, 5000, 8088, 8888.

Unrestricted access (0.0.0.0/0) increases opportunities for malicious activity, such as hacking, denial-of-service attacks, and loss of data.

**Usage considerations**

- This control applies only to Amazon EC2 security group and security group ingress resources with ingress rules that allow inbound traffic from 0.0.0.0/0 or ::/0.
- This control does not allow use of the SourcePrefixListId property on Amazon EC2 Security Group and Amazon EC2 Security Group Ingress resources.

**Remediation for rule failure**

Remove Amazon EC2 security group ingress rules that allow traffic from 0.0.0.0/0 or ::/0 to high-risk ports: 3389, 20, 23, 110, 143, 3306, 8080, 1433, 9200, 9300, 25, 445, 135, 21, 1434, 4333, 5432, 5500, 5601, 22, 3000, 5000, 8088, 8888.

The use of managed prefix lists is not supported.

The examples that follow show how to implement this remediation.

**Amazon EC2 Security Group - Example**

Amazon EC2 security group configured to allow traffic from the source IP range 0.0.0.0/0 or ::/0 on a port range that does not include a high-risk port. The example is shown in JSON and in YAML.

**JSON example**

---

Proactive controls
The examples that follow show how to implement this remediation.

**Amazon EC2 Security Group Ingress Rule - Example**

Amazon EC2 security group ingress rule configured to allow traffic from the source IP range `0.0.0.0/0` or `::/0` on a port range that does not include a high-risk port. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "SecurityGroup": {
        "Type": "AWS::EC2::SecurityGroup",
        "Properties": {
            "GroupDescription": "sample-security-group",
            "SecurityGroupIngress": [
                {
                    "IpProtocol": "tcp",
                    "CidrIp": "0.0.0.0/0",
                    "FromPort": 80,
                    "ToPort": 80
                }
            ]
        }
    }
}
```

**YAML example**

```yaml
SecurityGroup:
    Type: AWS::EC2::SecurityGroup
    Properties:
        GroupDescription: sample-security-group
        SecurityGroupIngress:
            - IpProtocol: tcp
              CidrIp: '0.0.0.0/0'
              FromPort: 80
              ToPort: 80
```

Proactive controls
YAML example

SecurityGroupIngress:
  Type: AWS::EC2::SecurityGroupIngress
  Properties:
    GroupId: !GetAtt 'SecurityGroup.GroupId'
    IpProtocol: tcp
    CidrIp: '0.0.0.0/0'
    FromPort: 80
    ToPort: 90

CT.EC2.PR.4 rule specification

# ###################################################################
#                    Rule Specification                             #
# ###################################################################
#
# Rule Identifier:
#   vpc_sg_restricted_common_ports_check
#

# Description:
# This control checks whether an Amazon EC2 security group rule that contains the
# strings '0.0.0.0/0' or '::/0' as a source IP range
# does not allow incoming TCP, UDP, ICMP, ICMPv6 traffic to the following ports:
# '3389', '20', '23', '110', '143',
# '3306', '8080', '1433', '9200', '9300', '25', '445', '135', '21', '1434', '4333',
# '5432', '5500', '5601', '22', '3000', '5000',
# '8088', '8888'.
#
# Reports on:
# AWS::EC2::SecurityGroup, AWS::EC2::SecurityGroupIngress
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation Hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any EC2 security group or EC2 security
group ingress resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an EC2 security group resource or EC2 security
group ingress resource
# And: EC2 security group or EC2 security group ingress resource does not allow
inbound traffic from a source
# prefix list and has no rules allowing inbound traffic from source
# '0.0.0.0/0' or '::/0'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an EC2 security group resource or EC2 security
group ingress resource
# And: EC2 security group or EC2 security group ingress resource has rules
allowing inbound traffic
# from a source prefix list, or source '0.0.0.0/0' or '::/0'
And: EC2 security group or EC2 security group ingress resource has a rule that allows all traffic
    ('IpProtocol' is set to '-1' or another protocol number)
    Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
    And: The input document contains an EC2 security group resource or EC2 security group ingress resource
    And: EC2 security group or EC2 security group ingress resource has rules allowing inbound traffic
        from a source prefix list, or source '0.0.0.0/0' or '::/0'
    And: EC2 security group or EC2 security group ingress resource has no rules that allow all traffic
        ('IpProtocol' is not set to '-1' or another protocol number)
    And: Ports allowed are in the list of blocked ports
    Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
    And: The input document contains an EC2 security group resource or EC2 security group ingress resource
    And: EC2 security group or EC2 security group ingress resource has rules allowing inbound traffic
        from a source prefix list, or source '0.0.0.0/0' or '::/0'
    And: EC2 security group or EC2 security group ingress resource has no rules that allow all traffic
        ('IpProtocol' is not set to '-1' or another protocol number)
    And: Ports allowed are not in the list of blocked ports
    Then: PASS

# Constants

let SECURITY_GROUP_TYPE = "AWS::EC2::SecurityGroup"
let SECURITY_GROUP_INGRESS_TYPE = "AWS::EC2::SecurityGroupIngress"
let BLOCKED_PORTS = [3389, 20, 23, 110, 143, 3306, 8080, 1433, 9200, 9300, 25, 445, 135, 21, 1434, 4333, 5432, 5500, 5601, 22, 3000, 5000, 8088, 8888]
let AUTHORIZED_PROTOCOLS = ["tcp", "udp", "icmp", "icmpv6"]
let UNRESTRICTED_IPV4_RANGES = ["0.0.0.0/0"]
let UNRESTRICTED_IPV6_RANGES = ["::/0"]
let INPUT_DOCUMENT = this
# Assignments

let ec2_security_groups = Resources[
    Type == %SECURITY_GROUP_TYPE
]

let ec2_security_group_ingress_rules = Resources[
    Type == %SECURITY_GROUP_INGRESS_TYPE
]

# Primary Rules

rule vpc_sg_restricted_common_ports_check when is_cfn_template(%INPUT_DOCUMENT)
    %ec2_security_groups not empty {
        check_security_group(%ec2_security_groups.Properties)
        <<
        [CT.EC2.PR.4]: Require that any Amazon EC2 security group rule does not use the source IP range 0.0.0.0/0 or ::/0 for specific high-risk ports
        [FIX]: Remove Amazon EC2 security group ingress rules that allow traffic from '0.0.0.0/0' or '::/0' to high-risk ports: '3389', '20', '23', '110', '143', '3306', '8080', '1433', '9200', '9300', '25', '445', '135', '21', '1434', '4333', '5432', '5500', '5601', '22', '3000', '5000', '8088', '8888'. The use of managed prefix lists is not supported.
        >>
    }

rule vpc_sg_restricted_common_ports_check when is_cfn_template(%INPUT_DOCUMENT)
    %ec2_security_group_ingress_rules not empty {
        check_ingress_rule(%ec2_security_group_ingress_rules.Properties)
        <<
        [CT.EC2.PR.4]: Require that any Amazon EC2 security group rule does not use the source IP range 0.0.0.0/0 or ::/0 for specific high-risk ports
        [FIX]: Remove Amazon EC2 security group ingress rules that allow traffic from '0.0.0.0/0' or '::/0' to high-risk ports: '3389', '20', '23', '110', '143', '3306', '8080', '1433', '9200', '9300', '25', '445', '135', '21', '1434', '4333', '5432', '5500', '5601', '22', '3000', '5000', '8088', '8888'. The use of managed prefix lists is not supported.
        >>
    }
rule vpc_sg_restricted_common_ports_check when is_cfn_hook(%INPUT_DOCUMENT, %SECURITY_GROUP_TYPE) {
    check_security_group(%INPUT_DOCUMENT.%SECURITY_GROUP_TYPE.resourceProperties)
    <<
    [CT.EC2.PR.4]: Require that any Amazon EC2 security group rule does not use the source IP range 0.0.0.0/0 or ::/0 for specific high-risk ports
    [FIX]: Remove Amazon EC2 security group ingress rules that allow traffic from '0.0.0.0/0' or '::/0' to high-risk ports: '3389', '20', '23', '110', '143', '3306', '8080', '1433', '9200', '9300', '25', '445', '135', '21', '1434', '4333', '5432', '5500', '5601', '22', '3000', '5000', '8088', '8888'. The use of managed prefix lists is not supported.
    >>
}

rule vpc_sg_restricted_common_ports_check when is_cfn_hook(%INPUT_DOCUMENT, %SECURITY_GROUP_INGRESS_TYPE) {
    check_ingress_rule(%INPUT_DOCUMENT.%SECURITY_GROUP_INGRESS_TYPE.resourceProperties)
    <<
    [CT.EC2.PR.4]: Require that any Amazon EC2 security group rule does not use the source IP range 0.0.0.0/0 or ::/0 for specific high-risk ports
    [FIX]: Remove Amazon EC2 security group ingress rules that allow traffic from '0.0.0.0/0' or '::/0' to high-risk ports: '3389', '20', '23', '110', '143', '3306', '8080', '1433', '9200', '9300', '25', '445', '135', '21', '1434', '4333', '5432', '5500', '5601', '22', '3000', '5000', '8088', '8888'. The use of managed prefix lists is not supported.
    >>
}

# Parameterized Rules

# rule check_security_group(security_group) {
%security_group [
    SecurityGroupIngress exists
    SecurityGroupIngress is_list
    SecurityGroupIngress not empty
] {
    SecurityGroupIngress[*] {
        check_ingress_rule(this)
    }
}
}
rule check_ingress_rule(ingress_rule) {
    %ingress_rule[ CidrIp in %UNRESTRICTED_IPV4_RANGES or
    CidrIpv6 in %UNRESTRICTED_IPV6_RANGES or
    SourcePrefixListId exists ] { 
        # Scenario 3
        IpProtocol exists
        IpProtocol in %AUTHORIZED_PROTOCOLS

        when IpProtocol in ["tcp", "udp"] {
            FromPort exists
            ToPort exists

            let ingress_block = this

            %BLOCKED_PORTS.* { 
                # Scenarios 4 and 5
                check_ports(this, %ingress_block.FromPort, %ingress_block.ToPort)
            }
        }
    }
}

rule check_ports(port, FromPort, ToPort) {
    %FromPort > %port or
    %ToPort < %port
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.EC2.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
  SecurityGroup:
    Type: AWS::EC2::SecurityGroup
    Properties:
      GroupDescription:
        Fn::Sub: ${AWS::StackName}-example
      SecurityGroupIngress:
        - IpProtocol: tcp
          CidrIp: 0.0.0.0/0
          FromPort: 80
          ToPort: 80
```

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

```
Resources:
  PrefixList:
    Type: AWS::EC2::PrefixList
    Properties:
      PrefixListName:
        Fn::Sub: ${AWS::StackName}-example
      AddressFamily: IPv4
      MaxEntries: 10
      Entries:
        - Cidr: "0.0.0.0/0"
          Description: Public internet
  SecurityGroup:
    Type: AWS::EC2::SecurityGroup
    Properties:
      GroupDescription:
        Fn::Sub: ${AWS::StackName}-example
      SecurityGroupIngress:
```

Proactive controls
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription:
      Fn::Sub: ${AWS::StackName}-example
    SecurityGroupIngress:
      - IpProtocol: tcp
        CidrIp: 0.0.0.0/0
        FromPort: 22
        ToPort: 22

[CT.EC2.PR.5] Require any Amazon EC2 network ACL to prevent ingress from 0.0.0.0/0 to port 22 or port 3389

This control checks whether the Amazon EC2 network ACL inbound entry allows unrestricted incoming traffic (0.0.0.0/0 or ::/0) for SSH or RDP.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::NetworkAclEntry
- **AWS CloudFormation guard rule:** [CT.EC2.PR.5 rule specification](#)

Details and examples
• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.EC2.PR.5 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.EC2.PR.5 example templates

Explanation

Access to remote server administration ports, such as port 22 (SSH) and port 3389 (RDP), should not be publicly accessible, because these ports may allow unintended access to resources within your VPC.

Usage considerations

• This control only applies to Amazon EC2 network ACL entry resources that allow unrestricted inbound traffic.

Remediation for rule failure

For Amazon EC2 network ACL entries that allow inbound connectivity on port 22 or port 3389, provide a CIDR range in CidrBlock or Ipv6CidrBlock that does not allow traffic from all sources.

The examples that follow show how to implement this remediation.

Amazon EC2 Network ACL Entry - Example One

Amazon EC2 network ACL entry configured to allow unrestricted inbound IPv4 TCP traffic in a port range excluding port 22 (SSH) and port 3389 (RDP). The example is shown in JSON and in YAML.

JSON example

```
{
    "NetworkAclEntry": {
        "Type": "AWS::EC2::NetworkAclEntry",
        "Properties": {
            "CidrBlock": "0.0.0.0/0",
            "Egress": false,
            "NetworkAclId": {
```
The examples that follow show how to implement this remediation.

**Amazon EC2 Network ACL Entry - Example Two**

Amazon EC2 network ACL entry configured to allow unrestricted inbound IPv6 UDP traffic in a port range excluding port 3389 (RDP). The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "Ref": "NACL",
  "Protocol": 6,
  "PortRange": {
    "From": 2000,
    "To": 2005
  },
  "RuleAction": "allow",
  "RuleNumber": 100
}
```

**YAML example**

```yaml
NetworkAclEntry:
  Type: AWS::EC2::NetworkAclEntry
Properties:
  CidrBlock: '0.0.0.0/0'
  Egress: false
  NetworkAclId: !Ref 'NACL'
  Protocol: 6
  PortRange:
    From: 2000
    To: 2005
  RuleAction: allow
  RuleNumber: 100
```

The examples that follow show how to implement this remediation.
"NetworkAclEntry": {
    "Type": "AWS::EC2::NetworkAclEntry",
    "Properties": {
        "Ipv6CidrBlock": "::/0",
        "Egress": false,
        "NetworkAclId": {
            "Ref": "NACL"
        },
        "Protocol": 17,
        "PortRange": {
            "From": 100,
            "To": 200
        },
        "RuleAction": "allow",
        "RuleNumber": 100
    }
}

YAML example

NetworkAclEntry:
  Type: AWS::EC2::NetworkAclEntry
  Properties:
    Ipv6CidrBlock: ::/0
    Egress: false
    NetworkAclId: !Ref 'NACL'
    Protocol: 17
    PortRange:
      From: 100
      To: 200
    RuleAction: allow
    RuleNumber: 100

CT.EC2.PR.5 rule specification

# ###################################
##       Rule Specification        ##
### Proactive controls
854
# Rule Identifier:
# nacl_no_unrestricted_ssh_rdp_check
#
# Description:
# This control checks whether the Amazon EC2 network ACL inbound entry allows
# unrestricted incoming traffic ('0.0.0.0/0' or '::/0') for SSH or RDP.
#
# Reports on:
# AWS::EC2::NetworkAclEntry
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any EC2 network ACL entry resources
# Then: SKIP
#
# Scenario: 2
# Given: The input document contains a EC2 network ACL entry resource
# And: EC2 network ACL entry resource has no CIDR block allowing inbound traffic
# from source '0.0.0.0/0' or '::/0'
# Then: SKIP
#
# Scenario: 3
# Given: The input document contains a EC2 network ACL entry resource
# And: EC2 network ACL entry resource allows inbound traffic
# from source '0.0.0.0/0' or '::/0'
# And: EC2 network ACL entry resource allows all traffic
# ('IpProtocol' is set to '-1')
# Then: FAIL
#
# Scenario: 4
# Given: The input document contains a EC2 network ACL entry resource
# And: The input document contains a EC2 network ACL entry resource
And: EC2 network ACL entry resource allows inbound traffic from source '0.0.0.0/0' or '::/0'
And: EC2 network ACL entry resource allows TCP (protocol 6) traffic
And: EC2 network ACL entry resource allows traffic from a PortRange that includes 22
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a EC2 network ACL entry resource
And: EC2 network ACL entry resource allows inbound traffic from source '0.0.0.0/0' or '::/0'
And: EC2 network ACL entry resource allows TCP (protocol 6) or UDP (protocol 17) traffic
And: EC2 network ACL entry resource allows traffic from a PortRange that includes 3389
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a EC2 network ACL entry resource
And: EC2 network ACL entry resource allows inbound traffic from source '0.0.0.0/0' or '::/0'
And: EC2 network ACL entry resource allows TCP (protocol 6) traffic
And: EC2 network ACL entry resource allows traffic from a PortRange that excludes 22
Then: PASS

Scenario: 7
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a EC2 network ACL entry resource
And: EC2 network ACL entry resource allows inbound traffic from source '0.0.0.0/0' or '::/0'
And: EC2 network ACL entry resource allows TCP (protocol 6) or UDP (protocol 17) traffic
And: EC2 network ACL entry resource allows traffic from a PortRange that excludes 3389
Then: PASS

# Constants

let NETWORK_ACL_TYPE = "AWS::EC2::NetworkAclEntry"
let INPUT_DOCUMENT = this
let ALL_TRAFFIC_PROTOCOL = [-1, "-1"]
let TCP_PROTOCOL = [6, "6"]
let UDP_PROTOCOL = [17, "17"]
let UNRESTRICTED_IPV4_RANGES = ["0.0.0.0/0"]
let UNRESTRICTED_IPV6_RANGES = ["::/0"]
let SSH_PORT = 22
let RDP_PORT = 3389

# Assignments
#
let nacl_entries = Resources.*[ Type == %NETWORK_ACL_TYPE ]

# Primary Rules
#
rule nacl_no_unrestricted_ssh_rdp_check when is_cfn_template(%INPUT_DOCUMENT) %nacl_entries not empty {
    check(%nacl_entries.Properties)
    =>
    [CT.EC2.PR.5]: Require any Amazon EC2 network ACL to prevent ingress from 0.0.0.0/0 to port 22 or port 3389
    [FIX]: For Amazon EC2 network ACL entries that allow inbound connectivity on port 22 or port 3389, provide a CIDR range in 'CidrBlock' or 'Ipv6CidrBlock' that does not allow traffic from all sources.
    >>
}

rule nacl_no_unrestricted_ssh_rdp_check when is_cfn_hook(%INPUT_DOCUMENT, %NETWORK_ACL_TYPE) {
    check(%INPUT_DOCUMENT.%NETWORK_ACL_TYPE.resourceProperties)
    =>
    [CT.EC2.PR.5]: Require any Amazon EC2 network ACL to prevent ingress from 0.0.0.0/0 to port 22 or port 3389
    [FIX]: For Amazon EC2 network ACL entries that allow inbound connectivity on port 22 or port 3389, provide a CIDR range in 'CidrBlock' or 'Ipv6CidrBlock' that does not allow traffic from all sources.
    >>
}

# Parameterized Rules
#
rule check(nacl_entry) {
%nacl_entry [  
  # Scenario 2  
  filter_allow_unrestricted_ingress(this)  
] {  
  # Scenario 3  
  Protocol exists  
  Protocol not in %ALL_TRAFFIC_PROTOCOL  
  
  # Scenario 4, 6  
  check_for_open_ssh(this)  
  
  # Scenario 5, 7  
  check_for_open_rdp(this)  
}  
}  

rule filter_allow_unrestricted_ingress(nacl_entry) {  
  Egress not exists or  
  Egress != true  
  
  CidrBlock in %UNRESTRICTED_IPV4_RANGES or  
  Ipv6CidrBlock in %UNRESTRICTED_IPV6_RANGES  
  
  RuleAction == "allow"  
}  

rule check_for_open_ssh(nacl_entry) {  
  %nacl_entry [  
    Protocol in %TCP_PROTOCOL  
  ] {  
    check_port_range_exists(this)  
    check_ports(%SSH_PORT, PortRange.From, PortRange.To)  
  }  
}  

rule check_for_open_rdp(nacl_entry) {  
  %nacl_entry [  
    Protocol in %TCP_PROTOCOL or  
    Protocol in %UDP_PROTOCOL  
  ] {  
    check_port_range_exists(this)  
    check_ports(%RDP_PORT, PortRange.From, PortRange.To)  
  }  
}
rule check_port_range_exists(nacl_entry) {
    PortRange exists
    PortRange is_struct
    PortRange {
        From exists
        To exists
    }
}

rule check_ports(port, nacl_from_port, nacl_to_port) {
    %nacl_from_port > %port or
    %nacl_to_port < %port
}

# Utility Rules
#
# rule is_cfn_template(doc) {
#    %doc {
#        AWSTemplateFormatVersion exists  or
#        Resources exists
#    }
#}

rule is_cfn_hook(doc, NETWORK_ACL_TYPE) {
    %doc.%NETWORK_ACL_TYPE.resourceProperties exists
}

**CT.EC2.PR.5 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:**

**VPC:**

  Type: AWS::EC2::VPC

  Properties:
CidrBlock: 192.168.0.0/16

NACL:
  Type: AWS::EC2::NetworkAcl
  Properties:
    VpcId:
      Ref: VPC

NetworkAclEntry:
  Type: AWS::EC2::NetworkAclEntry
  Properties:
    CidrBlock: 0.0.0.0/0
    Egress: false
    NetworkAclId:
      Ref: NACL
    Protocol: 6
    PortRange:
      From: 2000
      To: 2005
    RuleAction: allow
    RuleNumber: 100

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 192.168.0.0/16
  NACL:
    Type: AWS::EC2::NetworkAcl
    Properties:
      VpcId:
        Ref: VPC
  NetworkAclEntry:
    Type: AWS::EC2::NetworkAclEntry
    Properties:
      CidrBlock: 0.0.0.0/0
      Egress: false
      NetworkAclId:
        Ref: NACL
[CT.EC2.PR.6] Require that Amazon EC2 transit gateways refuse automatic Amazon VPC attachment requests

This control checks whether Amazon EC2 transit gateways are configured to accept Amazon VPC attachment requests automatically.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::TransitGateway
- **AWS CloudFormation guard rule:** [CT.EC2.PR.6 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.6 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EC2.PR.6 example templates](#)

**Explanation**

Turning on the `AutoAcceptSharedAttachments` property configures a transit gateway to accept cross-account VPC attachment requests automatically, without verifying the request or the account from which the attachment is originating. In alignment with the best practices of authorization and authentication, we recommend turning off this feature, to ensure that only authorized VPC attachment requests are accepted.

**Remediation for rule failure**

Omit the `AutoAcceptSharedAttachments` property or set the property to `disable`. 
The examples that follow show how to implement this remediation.

**AWS Transit Gateway - Example**

AWS Transit Gateway configured to deactivate auto-acceptance of cross-account Amazon VPC attachments. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "TransitGateway": {
        "Type": "AWS::EC2::TransitGateway",
        "Properties": {
            "AutoAcceptSharedAttachments": "disable"
        }
    }
}
```

**YAML example**

```yaml
TransitGateway:
  Type: AWS::EC2::TransitGateway
  Properties:
    AutoAcceptSharedAttachments: disable
```

**CT.EC2.PR.6 rule specification**

```yaml
# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   ec2_transit_gateway_auto_vpc_attach_disabled_check
# Description:
#   This control checks whether Amazon EC2 transit gateways are configured to accept Amazon VPC attachment requests automatically.
```
# Reports on:
#   AWS::EC2::TransitGateway
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#       Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document does not contain any EC2 transit gateway resources
#       Then: SKIP
#   Scenario: 2
#       Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an EC2 transit gateway resource
#       And: 'AutoAcceptSharedAttachments' configuration has been provided and is set
to a value other than 'disable'
#       Then: FAIL
#   Scenario: 3
#       Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an EC2 transit gateway resource
#       And: 'AutoAcceptSharedAttachments' configuration has not been provided
#       Then: PASS
#   Scenario: 4
#       Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an EC2 transit gateway resource
#       And: 'AutoAcceptSharedAttachments' configuration has been provided and set to
'disable'
#       Then: PASS
#
# Constants
#
let EC2_TRANSIT_GATEWAY_TYPE = "AWS::EC2::TransitGateway"
let INPUT_DOCUMENT = this
# Assignments

let ec2_transit_gateway = Resources.*[ Type == %EC2_TRANSIT_GATEWAY_TYPE ]

# Primary Rules

rule ec2_transit_gateway_auto_vpc_attach_disabled_check when
    is_cfn_template(%INPUT_DOCUMENT)
    %ec2_transit_gateway not empty {
        check(%ec2_transit_gateway.Properties)
        <<
            [CT.EC2.PR.6]: Require that Amazon EC2 transit gateways refuse automatic Amazon VPC attachment requests
            [FIX]: Omit the 'AutoAcceptSharedAttachments' property or set the property to 'disable'
        >>
    }

rule ec2_transit_gateway_auto_vpc_attach_disabled_check when
    is_cfn_hook(%INPUT_DOCUMENT, %EC2_TRANSIT_GATEWAY_TYPE) {
        check(%INPUT_DOCUMENT.%EC2_TRANSIT_GATEWAY_TYPE.resourceProperties)
        <<
            [CT.EC2.PR.6]: Require that Amazon EC2 transit gateways refuse automatic Amazon VPC attachment requests
            [FIX]: Omit the 'AutoAcceptSharedAttachments' property or set the property to 'disable'
        >>
    }

# Parameterized Rules

rule check(ec2_transit_gateway) {
    %ec2_transit_gateway {
        # Scenario 3
        AutoAcceptSharedAttachments not exists or
        # Scenario 2 and 4
        AutoAcceptSharedAttachments == "disable"
    }
}

#
CT.EC2.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  TransitGateway:
    Type: AWS::EC2::TransitGateway
    Properties:
      AutoAcceptSharedAttachments: disable

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  TransitGateway:
    Type: AWS::EC2::TransitGateway
    Properties:
      AutoAcceptSharedAttachments: enable
[CT.EC2.PR.7] Require an Amazon EBS volume resource to be encrypted at rest when defined by means of the AWS::EC2::Instance BlockDeviceMappings property or AWS::EC2::Volume resource type

This control checks whether your standalone Amazon EC2 EBS volume and Amazon Elastic Block Store (EBS) volume created through EC2 instance Block Device Mappings are encrypted at rest. Specifically, it checks that the **Encrypted** property is set to **true** in either the EBS volume resource definition or an EC2 instance resource definition's **BlockDeviceMappings** property.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::Instance, AWS::EC2::Volume
- **AWS CloudFormation guard rule:** [CT.EC2.PR.7 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.7 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EC2.PR.7 example templates](#)

**Explanation**

For an added layer of security of your sensitive data in Amazon EC2 EBS volumes, you should enable EBS encryption at rest. Amazon EBS encryption offers a straightforward encryption solution for your EBS resources that doesn't require you to build, maintain, and secure your own key management infrastructure. It uses KMS keys when creating encrypted volumes and snapshots.

Amazon Elastic Block Store (EBS) volumes can be inherited from:

- The Amazon Machine Image (AMI) specified with the ImageId property
- The Launch Template specified with the LaunchTemplateId property
Usage considerations

- For Amazon EC2 instance block device mappings, this control does not check any block device mappings created by means of an EC2 launch template or inherited through the AMI from which the instance is launched.

Remediation for rule failure

Set Encryption to true on Amazon EC2 EBS Volumes.

The examples that follow show how to implement this remediation.

Amazon EC2 Instance - Example

Amazon EC2 instance with an encrypted EBS volume. The example is shown in JSON and in YAML.

JSON example

```json
{
  "EC2Instance": {
    "Type": "AWS::EC2::Instance",
    "Properties": {
      "ImageId": {
        "Ref": "LatestAmiId"
      },
      "InstanceType": "t3.micro",
      "NetworkInterfaces": [
        {
          "DeviceIndex": 0,
          "SubnetId": {
            "Ref": "Subnet"
          },
          "AssociatePublicIpAddress": false
        }
      ],
      "BlockDeviceMappings": [
        {
          "DeviceName": "/dev/sdm",
          "Ebs": {
            "VolumeType": "gp3",
            "Iops": 200
          }
        }
      ]
    }
  }
}
```
The examples that follow show how to implement this remediation.

**Amazon EBS Volume - Example**

Amazon EBS Volume with encryption configured. The example is shown in JSON and in YAML.

**YAML example**

```yaml
EC2Instance:
  Type: AWS::EC2::Instance
  Properties:
    ImageId: !Ref 'LatestAmiId'
    InstanceType: t3.micro
    NetworkInterfaces:
      - DeviceIndex: 0
        SubnetId: !Ref 'Subnet'
        AssociatePublicIpAddress: false
    BlockDeviceMappings:
      - DeviceName: /dev/sdm
        Ebs:
          VolumeType: gp3
          Iops: 200
          Encrypted: true
          DeleteOnTermination: true
          VolumeSize: 20
```

The examples that follow show how to implement this remediation.
YAML example

EBSVolume:
  Type: AWS::EC2::Volume
  Properties:
    Size: 100
    AvailabilityZone: !Select
      - 0
      - !GetAZs ''
    Encrypted: true

CT.EC2.PR.7 rule specification

# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
# Rule Specification #
# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
# Rule Identifier: #
#   ec2_encrypted_volumes_check #
# Description:
# Checks whether standalone Amazon EC2 EBS volumes and new EC2 EBS volumes created
# through EC2 instance
# Block Device Mappings are encrypted at rest.
#
# Reports on:
# AWS::EC2::Instance, AWS::EC2::Volume
#
# Evaluates:
# AWS CloudFormation, CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
#   Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#   And: The input document does not contain any Amazon EC2 volume resources
#   Then: SKIP
# Scenario: 2
#   Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#   And: The input document contains an EC2 instance resource
#   And: 'BlockDeviceMappings' has not been provided or has been provided as an
#   empty list
#   Then: SKIP
# Scenario: 3
#   Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#   And: The input document contains an EC2 instance resource
#   And: 'BlockDeviceMappings' has been provided as a non-empty list
#   And: 'Ebs' has been provided in a 'BlockDeviceMappings' configuration
#   And: 'Encrypted' has not been provided in the 'Ebs' configuration
#   Then: FAIL
# Scenario: 4
#   Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#   And: The input document contains an EC2 instance resource
#   And: 'BlockDeviceMappings' has been provided as a non-empty list
#   And: 'Ebs' has been provided in a 'BlockDeviceMappings' configuration
#   And: 'Encrypted' has been provided in the 'Ebs' configuration and set to
#   bool(false)
#   Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an EC2 volume resource
# And: 'Encrypted' on the EC2 volume has not been provided
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an EC2 volume resource
# And: 'Encrypted' on the EC2 volume has been provided and is set to bool(false)
# Then: FAIL
# Scenario: 7
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an EC2 instance resource
# And: 'BlockDeviceMappings' has been provided as a non-empty list
# And: 'Ebs' has been provided in a 'BlockDeviceMappings' configuration
# And: 'Encrypted' has been provided in the 'Ebs' configuration and set to
# bool(true)
# Then: PASS
# Scenario: 8
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an EC2 volume resource
# And: 'Encrypted' on the EC2 volume has been provided and is set to bool(true)
# Then: PASS

# Constants
#
let EC2_VOLUME_TYPE = "AWS::EC2::Volume"
let EC2_INSTANCE_TYPE = "AWS::EC2::Instance"
let INPUT_DOCUMENT = this

# Assignments
#
let ec2_volumes = Resources.*[ Type == %EC2_VOLUME_TYPE ]
let ec2_instances = Resources.*[ Type == %EC2_INSTANCE_TYPE ]
rule ec2_encrypted_volumes_check when is_cfn_template(%INPUT_DOCUMENT) { 
  %ec2_volumes not empty { 
    check_volume(%ec2_volumes.Properties) 
    << 
      [CT.EC2.PR.7]: Require that an Amazon EBS volume attached to an Amazon EC2 instance is encrypted at rest 
      [FIX]: Set 'Encryption' to true on EC2 EBS Volumes. 
    >> 
  } 
}

rule ec2_encrypted_volumes_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_VOLUME_TYPE) { 
  check_volume(%INPUT_DOCUMENT.%EC2_VOLUME_TYPE.resourceProperties) 
  << 
    [CT.EC2.PR.7]: Require that an Amazon EBS volume attached to an Amazon EC2 instance is encrypted at rest 
    [FIX]: Set 'Encryption' to true on EC2 EBS Volumes. 
  >> 
}

rule ec2_encrypted_volumes_check when is_cfn_template(%INPUT_DOCUMENT) { 
  %ec2_instances not empty { 
    check_instance(%ec2_instances.Properties) 
    << 
      [CT.EC2.PR.7]: Require that an Amazon EBS volume attached to an Amazon EC2 instance is encrypted at rest 
      [FIX]: Set 'Encryption' to true on EC2 EBS Volumes. 
    >> 
  } 
}

rule ec2_encrypted_volumes_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_INSTANCE_TYPE) { 
  check_instance(%INPUT_DOCUMENT.%EC2_INSTANCE_TYPE.resourceProperties) 
  << 
    [CT.EC2.PR.7]: Require that an Amazon EBS volume attached to an Amazon EC2 instance is encrypted at rest 
    [FIX]: Set 'Encryption' to true on EC2 EBS Volumes. 
  >> 
}

# # Parameterized Rules #

rule check_instance(ec2_instance) {
%ec2_instance[
    filter_ec2_instance_block_device_mappings(this)
] {
    BlockDeviceMappings[
        Ebs exists
        Ebs is_struct
    ] {
        check_volume(Ebs)
    }
}

rule check_volume(ec2_volume) {
    %ec2_volume {
        # Scenario 2
        Encrypted exists
        # Scenarios 3 and 4
        Encrypted == true
    }
}

rule filter_ec2_instance_block_device_mappings(ec2_instance) {
    %ec2_instance {
        BlockDeviceMappings exists
        BlockDeviceMappings is_list
        BlockDeviceMappings not empty
    }
}

# # Utility Rules
# rule is_cfn_template(doc) {
#    %doc {
#        AWSTemplateFormatVersion exists or
#        Resources exists
#    }
#}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.EC2.PR.7 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
  - LatestAmiId:
    - Description: Region specific latest AMI ID from the Parameter Store
    - Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
    - Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  - VPC:
    - Type: AWS::EC2::VPC
    - Properties:
      - CidrBlock: 10.0.0.0/16
      - EnableDnsSupport: 'true'
      - EnableDnsHostnames: 'true'

  - Subnet:
    - Type: AWS::EC2::Subnet
    - Properties:
      - VpcId:
        - Ref: VPC
      - CidrBlock: 10.0.1.0/24
      - AvailabilityZone:
        - Fn::Select:
          - 0
          - Fn::GetAZs: '

  - EC2Instance:
    - Type: AWS::EC2::Instance
    - Properties:
      - ImageId:
        - Ref: LatestAmiId
      - InstanceType: t3.micro
      - NetworkInterfaces:
        - DeviceIndex: 0
        - SubnetId:
          - Ref: Subnet
          - AssociatePublicIpAddress: false
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.1.0/24
      AvailabilityZone:
        Fn::Select:
        - 0
        - Fn::GetAZs: ''
  EC2Instance:
    Type: AWS::EC2::Instance
    Properties:
      ImageId:
        Ref: LatestAmiId
      InstanceType: t3.micro
```json
NetworkInterfaces:
    - DeviceIndex: 0
      SubnetId:
        Ref: Subnet
      AssociatePublicIpAddress: false
    BlockDeviceMappings:
      - DeviceName: "/dev/sdm"
        Ebs:
          VolumeType: gp3
          Iops: 200
          Encrypted: false
          DeleteOnTermination: true
          VolumeSize: 20
```

**[CT.EC2.PR.8]** Require an Amazon EC2 instance to set `AssociatePublicIpAddress` to false on a new network interface created by means of the `NetworkInterfaces` property in the `AWS::EC2::Instance` resource

This control checks whether your Amazon EC2 instance is configured **not** to associate a public IP address by default. In particular, this control requires configuring the `AssociatePublicIpAddress` parameter to **false** on a new network interface created by means of the `NetworkInterfaces` property.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** `AWS::EC2::Instance`
- **AWS CloudFormation guard rule:** [CT.EC2.PR.8 rule specification](#)

**Details and examples**

- For details about the **PASS**, **FAIL**, and **SKIP** behaviors associated with this control, see the: [CT.EC2.PR.8 rule specification](#)
- For examples of **PASS** and **FAIL** CloudFormation Templates related to this control, see: [CT.EC2.PR.8 example templates](#)
This control is incompatible with AWS Cloud9

A compatibility issue exists with AWS Cloud9 and this AWS Control Tower proactive control, [CT.EC2.PR.8] Require an Amazon EC2 instance to set AssociatePublicIpAddress to false on a new network interface created by means of the NetworkInterfaces property in the AWS::EC2::Instance resource. If this control is enabled, you cannot create an Amazon EC2 environment in AWS Cloud9. For more information, see Troubleshooting AWS Cloud9.

Explanation

A public IPv4 address is an IP address that is reachable from the internet. If you launch your instance with a public IP address, then your EC2 instance is reachable from the internet. A private IPv4 address is an IP address that is not reachable from the internet. You can use private IPv4 addresses for communication between EC2 instances in the same VPC or in your connected private network.

IPv6 addresses are globally unique, and therefore are reachable from the internet. However, by default all subnets have the IPv6 addressing attribute set to false.

The network interface settings can be inherited from the Launch Template specified with the LaunchTemplateName property.

Usage considerations

- This control applies only to a new network interface created by means of the NetworkInterfaces property, where a NetworkInterfaceId has not been specified.
- This control requires subnet information to be specified within a NetworkInterfaces configuration instead of the root level SubnetId property.
- This control does not check a network interface that may be created in an Amazon EC2 launch template that may be referenced by the LaunchTemplateName property.
- A compatibility issue exists with AWS Cloud9 and this AWS Control Tower proactive control. If this control is enabled, you cannot create an Amazon EC2 environment in AWS Cloud9.
Remediation for rule failure

Specify network interfaces using the NetworkInterfaces property instead of the root level SubnetId property. Set AssociatePublicIpAddress to false within each NetworkInterfaces configuration.

The examples that follow show how to implement this remediation.

Amazon EC2 Instance - Example

Amazon EC2 instance configured with a new interface that disables public IP address association on creation. The example is shown in JSON and in YAML.

JSON example

```json
{
  "EC2Instance": {
    "Type": "AWS::EC2::Instance",
    "Properties": {
      "InstanceType": "t3.micro",
      "ImageId": {
        "Ref": "LatestAmiId"
      },
      "NetworkInterfaces": [
        {
          "DeviceIndex": 0,
          "SubnetId": {
            "Ref": "Subnet"
          },
          "AssociatePublicIpAddress": false
        }
      ]
  }
}
```

YAML example

```yaml
EC2Instance:
  Type: AWS::EC2::Instance
```
Properties:
  InstanceType: t3.micro
  ImageId: !Ref 'LatestAmiId'
  NetworkInterfaces:
    - DeviceIndex: 0
      SubnetId: !Ref 'Subnet'
      AssociatePublicIpAddress: false

CT.EC2.PR.8 rule specification

# """
# Rule Specification
# """

# Rule Identifier:
#   ec2_instance_no_public_ip_check

# Description:
#   This control checks whether your Amazon EC2 instance is configured to associate a
#   public IP address.

# Reports on:
#   AWS::EC2::Instance

# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
#   None

# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document does not contain any EC2 instance resources
#       Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an EC2 instance resource
# And: 'NetworkInterfaces' is not present on the EC2 instance resource or is an empty list
#      And: 'SubnetId' is not provided as a top-level resource property
#      Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#      And: The input document contains an EC2 instance resource
#      And: 'NetworkInterfaces' is present on the EC2 instance resource as a non-empty list
#      And: 'NetworkInterfaceId' is present for a configuration in 'NetworkInterfaces' and is a non-empty string or valid local reference
#      Then: SKIP
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#      And: The input document contains an EC2 instance resource
#      And: 'NetworkInterfaces' is not provided
#      And: 'SubnetId' is provided as a top-level resource property
#      Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#      And: The input document contains an EC2 instance resource
#      And: 'NetworkInterfaces' is present on the EC2 instance resource with one or more configurations
#      And: 'NetworkInterfaceId' is not present or is present and is an empty string or invalid local reference for a configuration in 'NetworkInterfaces'
#      And: 'AssociatePublicIpAddress' is not present for a configuration in 'NetworkInterfaces'
#      Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#      And: The input document contains an EC2 instance resource
#      And: 'NetworkInterfaces' is present on the EC2 instance resource
#      And: 'NetworkInterfaceId' is not present or is present and is an empty string or invalid local reference for a configuration in 'NetworkInterfaces'
#      And: 'AssociatePublicIpAddress' is present for a configuration in 'NetworkInterfaces'
#      And: 'AssociatePublicIpAddress' is set to bool(true)
Then: FAIL
Scenario: 7
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an EC2 instance resource
And: 'NetworkInterfaces' is present on the EC2 instance resource
And: 'NetworkInterfaceId' is not present or is present and is an empty string or invalid local reference for
a configuration in 'NetworkInterfaces'
And: 'AssociatePublicIpAddress' is present for a configuration in 'NetworkInterfaces'
And: 'AssociatePublicIpAddress' is set to bool(false)
Then: PASS

# Constants

let EC2_INSTANCE_TYPE = "AWS::EC2::Instance"
let INPUT_DOCUMENT = this

# Assignments

let ec2_instances = Resources.*[ Type == %EC2_INSTANCE_TYPE ]

# Primary Rules

rule ec2_instance_no_public_ip_check when is_cfn_template(%INPUT_DOCUMENT) %ec2_instances not empty {
    check(%ec2_instances.Properties)
    %ec2_instances not empty {
        <<
        [CT.EC2.PR.8]: Require any Amazon EC2 instance to have a non-public IP address
        [FIX]: Specify network interfaces using the 'NetworkInterfaces' property instead of the root level 'SubnetId' property. Set 'AssociatePublicIpAddress' to false within each 'NetworkInterfaces' configuration.
        >>
    }
}

rule ec2_instance_no_public_ip_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%EC2_INSTANCE_TYPE.resourceProperties)
    <<
    [CT.EC2.PR.8]: Require any Amazon EC2 instance to have a non-public IP address
[FIX]: Specify network interfaces using the 'NetworkInterfaces' property instead of the root level 'SubnetId' property. Set 'AssociatePublicIpAddress' to false within each 'NetworkInterfaces' configuration.

```python
rule check(ec2_instance) {
    %ec2_instance[ SubnetId exists ] {
        # Scenario 5
        SubnetId not exists
    }

    %ec2_instance[
        # Scenario 2
        NetworkInterfaces exists
        NetworkInterfaces is_list
        NetworkInterfaces not empty
    ] {
        NetworkInterfaces[
            # Scenario 3 and 4
            filter_network_interfaces(this)
        ] {
            # Scenario 6
            AssociatePublicIpAddress exists
            # Scenarios 7 and 8
            AssociatePublicIpAddress == false
        }
    }
}

rule filter_network_interfaces(network_interface) {
    %network_interface {
        NetworkInterfaceId not exists or
        filter_property_is_empty_string(NetworkInterfaceId) or
        filter_exclude_valid_local_reference(%INPUT_DOCUMENT, NetworkInterfaceId, "AWS::EC2::NetworkInterface")
    }
}

rule filter_property_is_empty_string(value) {
    %value {
```
this is_string
this == /\A\s*\z/
}
}

rule filter_exclude_valid_local_reference(doc, reference_properties, referenced_resource_type) {
  %reference_properties {
    this not is_string
    this is_struct

    when this.'Fn::GetAtt' exists {
      'Fn::GetAtt' {
        when filter_query_template_resources(%doc, this[0], %referenced_resource_type) {
          this not exists
        }
        this exists
      }
    }
    when this.'Fn::GetAtt' not exists {
      this exists
    }
  }
rule filter_query_template_resources(doc, resource_key, referenced_resource_type) {
  let referenced_resource = %doc.Resources[ keys == %resource_key ]
  %referenced_resource not empty
  %referenced_resource {
    Type in %referenced_resource_type
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or Resources exists
  }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.EC2.PR.8 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.1.0/24
      AvailabilityZone:
        Fn::Select:
        - 0
        - Fn::GetAZs: ''
  EC2Instance:
    Type: AWS::EC2::Instance
    Properties:
      InstanceType: t3.micro
      ImageId:
        Ref: LatestAmiId
      NetworkInterfaces:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'

  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.1.0/24
      AvailabilityZone:
        Fn::Select:
          - 0
          - Fn::GetAZs: ''

  EC2Instance:
    Type: AWS::EC2::Instance
    Properties:
      InstanceType: t3.micro
      ImageId:
        Ref: LatestAmiId
      SubnetId:
        Ref: Subnet
[CT.EC2.PR.9] Require any Amazon EC2 launch template not to auto-assign public IP addresses to network interfaces

This control checks whether your Amazon EC2 launch templates are configured to assign public IP addresses to network interfaces.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::LaunchTemplate
- **AWS CloudFormation guard rule:** [CT.EC2.PR.9 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.9 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EC2.PR.9 example templates](#)

**Explanation**

A public IP address is an IP address that is reachable from the internet. If you configure your network interfaces with a public IP address, then the resources associated to those network interfaces are reachable from the internet. EC2 resources should not be publicly accessible, because this may allow unintended access to your application servers.

**Usage considerations**

- This control applies only to new network interfaces created by means of the NetworkInterfaceId property in LaunchTemplateData (NetworkInterfaces configurations where a NetworkInterfaceId has not been specified).
- This control requires setting AssociatePublicIpAddress to false on new network interfaces created by means of the NetworkInterfaces property in LaunchTemplateData.
**Remediation for rule failure**

Set `AssociatePublicIpAddress` to `false` within each `NetworkInterfaces` configuration in `LaunchTemplateData`.

The examples that follow show how to implement this remediation.

**Amazon EC2 Launch Template - Example**

Amazon EC2 launch template configured with a network interface that disables public IP address association. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "EC2LaunchTemplate": {
        "Type": "AWS::EC2::LaunchTemplate",
        "Properties": {
            "LaunchTemplateData": {
                "NetworkInterfaces": [
                    {
                        "DeviceIndex": 0,
                        "SubnetId": {
                            "Ref": "Subnet"
                        },
                        "AssociatePublicIpAddress": false
                    }
                ]
            }
        }
    }
}
```

**YAML example**

```yaml
EC2LaunchTemplate:
    Type: AWS::EC2::LaunchTemplate
    Properties:
        LaunchTemplateData:
            NetworkInterfaces:
```

**Proactive controls**
- DeviceIndex: 0
  SubnetId: !Ref 'Subnet'
  AssociatePublicIpAddress: false

CT.EC2.PR.9 rule specification

```
# ###################################################################
##       Rule Specification       ##
# ###################################################################
#
# Rule Identifier:
#   ec2_launch_template_public_ip_disabled_check
#
# Description:
#   This control checks whether your Amazon EC2 launch templates are configured to
#   assign public IP addresses to network interfaces.
#
# Reports on:
#   AWS::EC2::LaunchTemplate
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#        document
#     And: The input document does not contain any Amazon EC2 launch template
#        resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#        document
#     And: The input document contains an Amazon EC2 launch template resource
#     And: 'NetworkInterfaces' is not provided in 'LaunchTemplateData'
#     Then: SKIP
#   Scenario: 3
```
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 launch template resource
And: 'LaunchTemplateData.NetworkInterfaces' is present on the Amazon EC2 launch template resource as a non-empty list
And: 'NetworkInterfaceId' is present for a configuration in 'NetworkInterfaces' and is a non-empty string or valid local reference
Then: SKIP

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 launch template resource
And: 'LaunchTemplateData.NetworkInterfaces' is present on the Amazon EC2 launch template resource
And: 'NetworkInterfaceId' is not present or is present and is an empty string or invalid local reference for a configuration in 'NetworkInterfaces'
And: 'AssociatePublicIpAddress' is not present for a configuration in 'NetworkInterfaces'
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 launch template resource
And: 'LaunchTemplateData.NetworkInterfaces' is present on the Amazon EC2 launch template resource
And: 'NetworkInterfaceId' is not present or is present and is an empty string or invalid local reference for a configuration in 'NetworkInterfaces'
And: 'AssociatePublicIpAddress' is present for a configuration in 'NetworkInterfaces'
And: 'AssociatePublicIpAddress' is set to bool(true)
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 launch template resource
And: 'LaunchTemplateData.NetworkInterfaces' is present on the Amazon EC2 launch template resource
And: 'NetworkInterfaceId' is not present or is present and is an empty string or invalid local reference for a configuration in 'NetworkInterfaces'
And: 'AssociatePublicIpAddress' is present for a configuration in 'NetworkInterfaces'
And: 'AssociatePublicIpAddress' is set to bool(false)
Then: PASS

# Constants
#
let EC2_LAUNCH_TEMPLATE_TYPE = "AWS::EC2::LaunchTemplate"
let INPUT_DOCUMENT = this

# Assignments
#
let ec2_launch_templates = Resources.*[ Type == %EC2_LAUNCH_TEMPLATE_TYPE ]

# Primary Rules
#
rule ec2_launch_template_public_ip_disabled_check when is_cfn_template(%INPUT_DOCUMENT)
%ec2_launch_templates not empty
{
    check(%ec2_launch_templates.Properties)
    <<
        [CT.EC2.PR.9]: Require any Amazon EC2 launch template not to auto-assign public IP addresses to network interfaces
        [FIX]: Set 'AssociatePublicIpAddress' to 'false' within each 'NetworkInterfaces' configuration in 'LaunchTemplateData'.
    >>
}

rule ec2_launch_template_public_ip_disabled_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_LAUNCH_TEMPLATE_TYPE) {
    check(%INPUT_DOCUMENT.%EC2_LAUNCH_TEMPLATE_TYPE.resourceProperties)
    <<
        [CT.EC2.PR.9]: Require any Amazon EC2 launch template not to auto-assign public IP addresses to network interfaces
        [FIX]: Set 'AssociatePublicIpAddress' to 'false' within each 'NetworkInterfaces' configuration in 'LaunchTemplateData'.
    >>
}

# Parameterized Rules

Proactive controls
# rule check(ec2_launch_templates) {
  %ec2_launch_templates[
    # Scenario 2
    filter_launch_template(this)
  ] {
    LaunchTemplateData {
      NetworkInterfaces[
        # Scenario 3 and 4
        filter_network_interfaces(this)
      ] {
        # Scenario 5 and 6
        AssociatePublicIpAddress exists
        AssociatePublicIpAddress == false
      }
    }
  }
}

rule filter_launch_template(ec2_launch_template) {
  %ec2_launch_template {
    LaunchTemplateData exists
    LaunchTemplateData is_struct
    LaunchTemplateData {
      NetworkInterfaces exists
      NetworkInterfaces is_list
      NetworkInterfaces not empty
    }
  }
}

rule filter_network_interfaces(network_interface) {
  %network_interface {
    NetworkInterfaceId not exists or
    filter_property_is_empty_string(NetworkInterfaceId) or
    filter_exclude_valid_local_reference(%INPUT_DOCUMENT, NetworkInterfaceId, "AWS::EC2::NetworkInterface")
  }
}

rule filter_property_is_empty_string(value) {
  %value {
    this is_string
    this == /\A\s*\z/
rule filter_exclude_valid_local_reference(doc, reference_properties, referenced_resource_type) {
  %reference_properties {
    this not is_string
    this is_struct

    when this.'Fn::GetAtt' exists {
      'Fn::GetAtt' {
        when query_for_resource(%doc, this[0], %referenced_resource_type) {
          this not exists
        }
        this exists
      }
    }
    when this.'Fn::GetAtt' not exists {
      this exists
    }
  }
}
CT.EC2.PR.9 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
   Type: AWS::EC2::VPC
   Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
Subnet:
   Type: AWS::EC2::Subnet
   Properties:
      VpcId:
         Ref: VPC
      CidrBlock: 10.0.1.0/24
      AvailabilityZone:
         Fn::Select:
            - 0
            - Fn::GetAZs: ''
EC2LaunchTemplate:
   Type: AWS::EC2::LaunchTemplate
   Properties:
      LaunchTemplateData:
         NetworkInterfaces:
            - DeviceIndex: 0
              SubnetId:
                 Ref: Subnet
              AssociatePublicIpAddress: false

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Resources:

VPC:
Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsSupport: 'true'
  EnableDnsHostnames: 'true'

Subnet:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.1.0/24
  AvailabilityZone:
    Fn::Select:
      - 0
      - Fn::GetAZs: ''

EC2LaunchTemplate:
Type: AWS::EC2::LaunchTemplate
Properties:
  LaunchTemplateData:
    NetworkInterfaces:
      - DeviceIndex: 0
        SubnetId:
          Ref: Subnet
        AssociatePublicIpAddress: true

[CT.EC2.PR.10] Require Amazon EC2 launch templates to have Amazon CloudWatch detailed monitoring activated

This control checks whether the Amazon EC2 launch template has detailed monitoring enabled.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::LaunchTemplate
- **AWS CloudFormation guard rule:** [CT.EC2.PR.10 rule specification](#)
Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.10 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EC2.PR.10 example templates](#)

Explanation

Monitoring is an important part of maintaining the reliability, availability, and performance of your AWS solutions. You should collect monitoring data from all of the parts of your AWS solution so that you can more easily debug a multi-point failure if one occurs. From a security perspective, logging is also an important feature to enable for future forensics efforts in the case of any security incidents.

Remediation for rule failure

In LaunchTemplateData, provide a Monitoring configuration with Enabled set to true.

The examples that follow show how to implement this remediation.

Amazon EC2 Launch Template - Example

Amazon EC2 launch template configured with detailed monitoring enabled. The example is shown in JSON and in YAML.

JSON example

```
{
  "EC2LaunchTemplate": {
    "Type": "AWS::EC2::LaunchTemplate",
    "Properties": {
      "LaunchTemplateData": {
        "Monitoring": {
          "Enabled": true
        }
      }
    }
  }
}
```
**YAML example**

```yaml
EC2LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      Monitoring:
        Enabled: true
```

**CT.EC2.PR.10 rule specification**

```
# ############################################################################
##       Rule Specification        
# ############################################################################
#
# Rule Identifier:
#   ec2_launch_template_monitoring_enabled_check
#
# Description:
#   This control checks whether the Amazon EC2 launch template has detailed monitoring enabled.
#
# Reports on:
#   AWS::EC2::LaunchTemplate
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any EC2 launch template resources
#     Then: SKIP
```
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EC2 launch template resource
# And: 'LaunchTemplateData.Monitoring.Enabled' has not been provided or has been provided and is empty.
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EC2 launch template resource
# And: 'LaunchTemplateData.Monitoring.Enabled' has been provided
# And: 'LaunchTemplateData.Monitoring.Enabled' is equal to a value other than bool(true)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EC2 launch template resource
# And: 'LaunchTemplateData.Monitoring.Enabled' has been provided
# And: 'LaunchTemplateData.Monitoring.Enabled' is equal to bool(true)
# Then: PASS

# Constants
#
let EC2_LAUNCH_TEMPLATE_TYPE = "AWS::EC2::LaunchTemplate"
let INPUT_DOCUMENT = this

# Assignments
#
let ec2_launch_templates = Resources.*[ Type == %EC2_LAUNCH_TEMPLATE_TYPE ]

# Primary Rules
#
rule ec2_launch_template_monitoring_enabled_check when is_cfn_template(this)
%ec2_launch_templates not empty
{
    check(%ec2_launch_templates.Properties)
    <<
        [CT.EC2.PR.10]: Require Amazon EC2 launch templates to have Amazon CloudWatch detailed monitoring activated
}
[FIX]: In 'LaunchTemplateData', provide a 'Monitoring' configuration with 'Enabled' set to 'true'.

>}

rule ec2_launch_template_monitoring_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_LAUNCHTEMPLATE_TYPE) {
  check(%INPUT_DOCUMENT.%EC2_LAUNCHTEMPLATE_TYPE.resourceProperties)
  <<=
  [CT.EC2.PR.10]: Require Amazon EC2 launch templates to have Amazon CloudWatch detailed monitoring activated
  [FIX]: In 'LaunchTemplateData', provide a 'Monitoring' configuration with 'Enabled' set to 'true'.

>}

#
# Parameterized Rules
#
rule check(ec2_launch_template) {
  %ec2_launch_template {
    # Scenario 2
    LaunchTemplateData exists
    LaunchTemplateData is_struct

    LaunchTemplateData {
      Monitoring exists
      Monitoring is_struct

      # Scenario 3 and 4
      Monitoring {
        Enabled exists
        Enabled == true
      }
    }
  }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
CT.EC2.PR.10 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
EC2LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      Monitoring:
        Enabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
EC2LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      Monitoring:
        Enabled: false
[CT.EC2.PR.11] Require that an Amazon EC2 subnet does not automatically assign public IP addresses

This control checks whether your Amazon VPC subnets assign public IP addresses automatically.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::Subnet
- **AWS CloudFormation guard rule:** [CT.EC2.PR.11 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.11 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EC2.PR.11 example templates](#)

Explanation

All subnets have an attribute that determines whether a network interface created in the subnet automatically receives a public IPv4 address. When launched into subnets that have this attribute enabled, instances receive a public IP address assigned to their primary network interface.

**Usage considerations**

- This control deactivates automatic assignment of public IP addresses for new network interfaces in Amazon VPC subnets.
- When this control is in operation, public IP addresses can be assigned to network interfaces by means of resource-level settings. (For example, assignment of a public IP address can be made at EC2 instance launch time.)

Remediation for rule failure

Omit the MapPublicIpOnLaunch property to use the default configuration, or set the MapPublicIpOnLaunch property to false.
The examples that follow show how to implement this remediation.

**Amazon VPC Subnet - Example One**

Amazon VPC subnet configured to deactivate automatic assignment of public IP addresses by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "Subnet": {
      "Type": "AWS::EC2::Subnet",
      "Properties": {
         "VpcId": {
            "Ref": "VPC"
         },
         "CidrBlock": "10.0.0.0/24",
         "AvailabilityZone": {
            "Fn::Select": [
               0,
               {
                  "Fn::GetAZs": ""
               }
            ]
         }
      }
   }
}
```

**YAML example**

```yaml
Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId: !Ref 'VPC'
    CidrBlock: 10.0.0.0/24
    AvailabilityZone: !Select
      - 0
      - !GetAZs ''
```
The examples that follow show how to implement this remediation.

**Amazon VPC Subnet - Example Two**

Amazon VPC subnet configured to deactivate automatic assignment of public IP addresses by means of the `MapPublicIpOnLaunch` property. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "Subnet": {
        "Type": "AWS::EC2::Subnet",
        "Properties": {
            "VpcId": {
                "Ref": "VPC"
            },
            "CidrBlock": "10.0.0.0/24",
            "AvailabilityZone": {
                "Fn::Select": [0,
                                {
                                   "Fn::GetAZs": ""
                                }
                ],
            "MapPublicIpOnLaunch": false
        }
    }
}
```

**YAML example**

```
Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId: !Ref 'VPC'
    CidrBlock: 10.0.0.0/24
    AvailabilityZone: !Select
```
CT.EC2.PR.11 rule specification

# ###################################################################
##       Rule Specification        ##
###################################################################
#
# Rule Identifier:
#   subnet_auto_assign_public_ip_disabled_check
#
# Description:
#   This control checks whether your Amazon VPC subnets automatically assign public IP addresses.
#
# Reports on:
#   AWS::EC2::Subnet
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any EC2 subnet resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an EC2 subnet resource
#     And: 'MapPublicIpOnLaunch' is present and set to bool(true)
#     Then: FAIL
#   Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an EC2 subnet resource
And: 'MapPublicIpOnLaunch' is not present
Then: PASS

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an EC2 subnet resource
And: 'MapPublicIpOnLaunch' is present and set to bool(false)
Then: PASS

# Constants
let EC2_SUBNET_TYPE  = "AWS::EC2::Subnet"
let INPUT_DOCUMENT = this

# Assignments
let ec2_subnets = Resources.*[ Type == %EC2_SUBNET_TYPE ]

# Primary Rules
rule subnet_auto_assign_public_ip_disabled_check when is_cfn_template(%INPUT_DOCUMENT)
%ec2_subnets not empty {
  check(%ec2_subnets.Properties)
  "<<
    [CT.EC2.PR.11]: Require that an Amazon EC2 subnet does not automatically assign public IP addresses
    [FIX]: Omit the 'MapPublicIpOnLaunch' property to use the default configuration, or set the 'MapPublicIpOnLaunch' property to 'false'.
  >>
}

rule subnet_auto_assign_public_ip_disabled_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_SUBNET_TYPE) {
  check(%INPUT_DOCUMENT.%EC2_SUBNET_TYPE.resourceProperties)
  "<<
    [CT.EC2.PR.11]: Require that an Amazon EC2 subnet does not automatically assign public IP addresses
  >>
}
[FIX]: Omit the 'MapPublicIpOnLaunch' property to use the default configuration, or set the 'MapPublicIpOnLaunch' property to 'false'.
>
}

# # Parameterized Rules
#
rule check(ec2_subnet) {
  %ec2_subnet {
    # Scenario 3
    MapPublicIpOnLaunch not exists or
    # Scenarios 2 and 4
    MapPublicIpOnLaunch == false
  }
}

# # Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.EC2.PR.11 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  VPC:
Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
    MapPublicIpOnLaunch: true
[CT.EC2.PR.12] Require an Amazon EC2 instance to specify at most one network interface by means of the NetworkInterfaces property in the AWS::EC2::Instance resource

This control checks whether your Amazon Elastic Compute Cloud (Amazon EC2) instance uses multiple ENIs (Elastic Network Interfaces). Specifically, it checks whether an AWS::EC2::Instance resource specifies multiple ENIs in the NetworkInterfaces property.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::Instance
- **AWS CloudFormation guard rule:** [CT.EC2.PR.12 rule specification](#)

### Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.12 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.EC2.PR.12 example templates](#)

### Explanation

Multiple ENIs can cause dual-homed instances, meaning instances that have multiple subnets. This duplication can add network security complexity and introduce unintended network paths and access.

The network interface settings can be inherited from the Launch Template specified with the LaunchTemplateName property.

### Usage considerations

- This control does not check a network interface that may be specified in an Amazon EC2 launch template and referenced by the LaunchTemplateName property.
- This rule is incompatible with scenarios in which the NetworkInterfaces property must be used to specify multiple ENIs. For example, this control may fail if an Amazon EC2...
instance that belongs to an Amazon EKS cluster specifies more than one ENI by means of the **NetworkInterfaces** property.

**Remediation for rule failure**

Configure Amazon EC2 instances with only one ENI.

The examples that follow show how to implement this remediation.

**Amazon EC2 Instance - Example**

EC2 Instance with a single network interface. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "EC2Instance": {
        "Type": "AWS::EC2::Instance",
        "Properties": {
            "ImageId": {
                "Ref": "LatestAmiId"
            },
            "NetworkInterfaces": [
                {
                    "SubnetId": {
                        "Ref": "TestSubnet"
                    },
                    "DeviceIndex": 0
                }
            ]
        }
    }
}
```

**YAML example**

```yaml
EC2Instance:
    Type: AWS::EC2::Instance
    Properties:
```

Proactive controls
CT.EC2.PR.12 rule specification

# ###################################################################
##       Rule Specification       ##
###################################################################
#
# Rule Identifier:  
#   ec2_instance_multiple_eni_check  
#
# Description:  
#   Checks whether Amazon Elastic Compute Cloud (Amazon EC2) instances use multiple  
#   ENIs (Elastic Network Interfaces)  
#   or Elastic Fabric Adapters (EFAs).  
#
# Reports on:  
#   AWS::EC2::Instance  
#
# Evaluates:  
#   AWS CloudFormation, AWS CloudFormation hook  
#
# Rule Parameters:  
#   None  
#
# Scenarios:  
#   Scenario: 1  
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook  
#     document  
#     And: The input document does not contain any Amazon EC2 instance resources  
#     Then: SKIP  
#   Scenario: 2  
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook  
#     document  
#     And: The input document contains an Amazon EC2 instance resource  
#     And: 'NetworkInterfaces' is not present or is present and contains 0  
#     configurations
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon EC2 instance resource
# And: 'NetworkInterfaces' is present and contains >1 configurations
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon EC2 instance resource
# And: 'NetworkInterfaces' is present
# And: 'NetworkInterfaces' is present and contains 1 configuration
# Then: PASS

# Constants
# let EC2_INSTANCE_TYPE = "AWS::EC2::Instance"
let INPUT_DOCUMENT = this

# Assignments
# let ec2_instances = Resources.*[ Type == %EC2_INSTANCE_TYPE ]

# Primary Rules
# rule ec2_instance_multiple_eni_check when is_cfn_template(%INPUT_DOCUMENT)
# %ec2_instances not empty {
check(%ec2_instances.Properties)
   %ec2_instances not empty {
   <<
   [CT.EC2.PR.12]: Require an Amazon EC2 instance to configure one ENI only
   [FIX]: Configure Amazon EC2 instances with only one ENI.
   >>
}

rule ec2_instance_multiple_eni_check when is_cfn_hook(%INPUT_DOCUMENT,
%EC2_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%EC2_INSTANCE_TYPE.resourceProperties)
    <<
[CT.EC2.PR.12]: Require an Amazon EC2 instance to configure one ENI only

[FIX]: Configure Amazon EC2 instances with only one ENI.

```
# Parameterized Rules

rule check(ec2_instance) {
  %ec2_instance [
    # Scenario 2
    NetworkInterfaces exists
    NetworkInterfaces is_list
    NetworkInterfaces not empty
  ] {
    # Scenario 3 and 4
    NetworkInterfaces[1] not exists
  }
}
```

# Utility Rules

```
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

**CT.EC2.PR.12 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'

  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24

  EC2Instance:
    Type: AWS::EC2::Instance
    Properties:
      ImageId:
        Ref: LatestAmiId
      InstanceType: t3.micro
      NetworkInterfaces:
        - SubnetId:
            Ref: Subnet
            DeviceIndex: 0

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
[CT.EC2.PR.13] Require an Amazon EC2 instance to have detailed monitoring enabled

This control checks whether an Amazon EC2 instance has detailed monitoring enabled.

- **Control objective**: Establish logging and monitoring
- **Implementation**: AWS CloudFormation guard rule
- **Control behavior**: Proactive
- **Resource types**: AWS::EC2::Instance
- **AWS CloudFormation guard rule**: [CT.EC2.PR.13 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.13 rule specification](#)
For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.EC2.PR.13 example templates](#)

### Explanation

By default, all Amazon EC2 instances are created with basic monitoring that sends host-level logs to Amazon CloudWatch every five (5) minutes. With detailed monitoring, host-level logs are collected every one (1) minute instead, leading to faster detection of possible malicious or anomalous activity.

#### Usage considerations

- When you enable detailed monitoring, you are charged per metric that is sent to CloudWatch. You are not charged for data storage. For more information, see the Amazon CloudWatch pricing page.

### Remediation for rule failure

Set Monitoring to true.

The examples that follow show how to implement this remediation.

### EC2 Instance - Example

An EC2 Instance with detailed monitoring enabled. The example is shown in JSON and in YAML.

#### JSON example

```json
{
    "Parameters": {
        "LatestAmiId": {
            "Description": "Region specific latest AMI ID from the Parameter Store",
            "Type": "AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>",
            "Default": "/aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2"
        }
    },
    "Resources": {
        "VPC": {
```

---

Proactive controls 914
YAML example

Parameters:

LatestAmiId:
Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId: !Ref 'VPC'
      CidrBlock: 10.0.0.0/24
  EC2Instance:
    Type: AWS::EC2::Instance
    Properties:
      ImageId: !Ref 'LatestAmiId'
      InstanceType: t3.micro
      NetworkInterfaces:
        - SubnetId: !Ref 'Subnet'
          DeviceIndex: 0
          Monitoring: true

CT.EC2.PR.13 rule specification

# ****************************
##     Rule Specification    ##
# ****************************
#
# Rule Identifier:
#   ec2_instance_detailed_monitoring_enabled_check
#
# Description:
#   This control checks whether an Amazon EC2 instance has detailed monitoring enabled.
#
# Reports on:
#   AWS::EC2::Instance
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
#     And: The input document does not contain any EC2 instance resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
#     And: The input document contains an EC2 instance resource
#     And: 'Monitoring' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
#     And: The input document contains an EC2 instance resource
#     And: 'Monitoring' has been provided and set to a value other than bool(true)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation Hook
#     Document
#     And: The input document contains an EC2 instance resource
#     And: 'Monitoring' has been provided and set to bool(true)
#     Then: PASS
#
# Constants
#
let EC2_INSTANCE_TYPE = "AWS::EC2::Instance"
let INPUT_DOCUMENT = this
#
# Assignments
#
let ec2_instances = Resources.*[ Type == %EC2_INSTANCE_TYPE ]
#
# Primary Rules
rule ec2_instance_detailed_monitoring_enabled_check when is_cfn_template(%INPUT_DOCUMENT) %ec2_instances not empty {
    check(%ec2_instances.Properties)
    <=
    [CT.EC2.PR.13]: Require an Amazon EC2 instance to have detailed monitoring enabled
    [FIX]: Set 'Monitoring' to 'true'.
    >>
}

rule ec2_instance_detailed_monitoring_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%EC2_INSTANCE_TYPE.resourceProperties)
    <=
    [CT.EC2.PR.13]: Require an Amazon EC2 instance to have detailed monitoring enabled
    [FIX]: Set 'Monitoring' to 'true'.
    >>
}

# Parameterized Rules
#
rule check(ec2_instance) {
    %ec2_instance {
        # Scenario 2
        Monitoring exists
        # Scenarios 3 and 4
        Monitoring == true
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or Resources exists
    }
}
CT.EC2.PR.13 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
  EC2Instance:
    Type: AWS::EC2::Instance
    Properties:
      ImageId:
        Ref: LatestAmiId
      InstanceType: t3.micro
      NetworkInterfaces:
        - SubnetId:
            Ref: Subnet
          DeviceIndex: 0
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
- LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
- VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

- Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24

- EC2Instance:
  Type: AWS::EC2::Instance
  Properties:
    ImageId:
      Ref: LatestAmiId
    InstanceType: t3.micro
    NetworkInterfaces:
      - SubnetId:
          Ref: Subnet
          DeviceIndex: 0
          Monitoring: false
[CT.EC2.PR.14] Require an Amazon EBS volume configured through an Amazon EC2 launch template to encrypt data at rest

This control checks whether an Amazon EC2 launch template with EBS volume block device mappings is configured to enable EBS volume encryption.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::LaunchTemplate
- **AWS CloudFormation guard rule:** [CT.EC2.PR.14 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.14 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EC2.PR.14 example templates](#)

Explanation

For an added layer of security of your sensitive data in an EBS volume, you should enable EBS encryption at rest. Amazon EBS encryption offers a straightforward encryption solution for your EBS resources. It doesn't require you to build, maintain, and secure your own key management infrastructure, and it uses KMS keys when creating encrypted volumes and snapshots.

---

**Usage considerations**

- This control applies only to an EC2 launch template that specifies EBS block device mappings.
- When you launch an instance using a launch template, you can override parameters that are specified in the launch template. To ensure that encryption is enabled for EBS block device mappings when you launch an instance with a launch template by means of the AWS::EC2::Instance resource, use this control in conjunction with CT.EC2.PR.7.
Remediation for rule failure

For every entry in the BlockDeviceMappings parameter with an Ebs configuration, set Encryption to true.

The examples that follow show how to implement this remediation.

Amazon EC2 launch template - Example

An Amazon EC2 launch template configured with an EBS block device mapping that has volume encryption enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
    "LaunchTemplate": {
        "Type": "AWS::EC2::LaunchTemplate",
        "Properties": {
            "LaunchTemplateData": {
                "BlockDeviceMappings": [
                    {
                        "DeviceName": "/dev/sdc",
                        "Ebs": {
                            "Encrypted": true
                        }
                    }
                ]
            }
        }
    }
}
```

YAML example

```
LaunchTemplate:
    Type: AWS::EC2::LaunchTemplate
    Properties:
        LaunchTemplateData:
            BlockDeviceMappings:
```

Proactive controls
CT.EC2.PR.14 rule specification

```yaml
# #############################################################################
##       Rule Specification        ##
# #############################################################################

# Rule Identifier:
#   ec2_launch_template_encrypted_volumes_check
#
# Description:
#   This control checks whether an Amazon EC2 launch template with EBS volume block
#   device mappings is configured to enable EBS volume encryption.
#
# Reports on:
#   AWS::EC2::LaunchTemplate
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any EC2 launch template resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EC2 launch template resource
#     And: 'BlockDeviceMappings' in 'LaunchTemplateData' has not been provided or has
#          been provided as an empty list
#     Then: SKIP
#   Scenario: 3
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EC2 launch template resource
# And: 'BlockDeviceMappings' in 'LaunchTemplateData' been provided as a non-empty list
# And: No entries in 'BlockDeviceMappings' contain 'Ebs' as a struct
# Then: SKIP

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EC2 launch template resource
# And: 'BlockDeviceMappings' in 'LaunchTemplateData' been provided as a non-empty list
# And: An entry in 'BlockDeviceMappings' contains 'Ebs' as a struct
# And: In the same entry, 'Encrypted' in 'Ebs' has not been provided or has been provided
# and set to a value other than bool(true)
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EC2 launch template resource
# And: 'BlockDeviceMappings' in 'LaunchTemplateData' been provided as a non-empty list
# And: An entry in 'BlockDeviceMappings' contains 'Ebs' as a struct
# And: In the same entry, 'Encrypted' in 'Ebs' has not been provided or has been provided
# and set to bool(true)
# Then: PASS

#
# Constants
#
let EC2_LAUNCH_TEMPLATE_TYPE = "AWS::EC2::LaunchTemplate"
let INPUT_DOCUMENT = this

#
# Assignments
#
let ec2_launch_templates = Resources.*[ Type == %EC2_LAUNCH_TEMPLATE_TYPE ]

#
rule ec2_launch_template_encrypted_volumes_check when is_cfn_template(this)  
    %ec2_launch_templates not empty {
    check(%ec2_launch_templates.Properties) <<
    [CT.EC2.PR.14]: Require an Amazon EBS volume configured through an Amazon EC2 launch template to encrypt data at rest
    [FIX]: For every entry in the 'BlockDeviceMappings' parameter with an 'Ebs' configuration, set 'Encryption' to true.
    >>
}

rule ec2_launch_template_encrypted_volumes_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_LAUNCH_TEMPLATE_TYPE) {
    check(%INPUT_DOCUMENT.%EC2_LAUNCH_TEMPLATE_TYPE.resourceProperties) <<
    [CT.EC2.PR.14]: Require an Amazon EBS volume configured through an Amazon EC2 launch template to encrypt data at rest
    [FIX]: For every entry in the 'BlockDeviceMappings' parameter with an 'Ebs' configuration, set 'Encryption' to true.
    >>
}

# Parameterized Rules
# Parameterized Rules

rule check(ec2_launch_template) {
    %ec2_launch_template [
        # Scenarios 2 and 3
        filter_launch_template_contains_ebs_block_device_mappings(this)
    ] {
        LaunchTemplateData {
            BlockDeviceMappings[
                Ebs exists
                Ebs is_struct
            ] {
                Ebs {
                    # Scenarios 4 and 5
                    Encrypted exists
                    Encrypted == true
                }
            }
        }
    }
}
CT. EC2. PR. 14 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
Properties:
  LaunchTemplateName:
    BlockDeviceMappings:
      - DeviceName: /dev/sdc
        Ebs:
          Encrypted: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  LaunchTemplate:
    Type: AWS::EC2::LaunchTemplate
Properties:
  LaunchTemplateName:
    BlockDeviceMappings:
      - DeviceName: /dev/sdc
        Ebs:
          Encrypted: false

[CT.EC2.PR.15] Require an Amazon EC2 instance to use an AWS Nitro instance type when creating from the 'AWS::EC2::LaunchTemplate' resource type

This control checks whether Amazon EC2 launch templates that specify an Amazon EC2 instance type or use attribute based instance selection, specify only AWS Nitro instance types.

- **Control objective:** Protect data integrity, Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::LaunchTemplate
- **AWS CloudFormation guard rule:** [CT.EC2.PR.15 rule specification](#)

Details and examples
For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.15 rule specification](#).

For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.EC2.PR.15 example templates](#).

### Explanation

The AWS Nitro System is a collection of hardware and software components built by AWS to enable high performance, high availability, and high security. The Nitro System provides enhanced security that continuously monitors, protects, and verifies the instance hardware and firmware. AWS Nitro offloads virtualization resources to dedicated hardware and software, which minimizes the attack surface. Finally, the Nitro System has a locked down security model to prohibit administrative access, eliminating the possibility of human error and tampering.

For information about Nitro instance types, see [Instances built on the Nitro System](#) in the *Amazon EC2 User Guide for Linux Instances*.

#### Usage considerations

- This control applies only to launch templates that specify an Amazon EC2 instance type by means of the InstanceType property or use attribute based instance selection by means of the InstanceRequirements property.
- When you launch an instance using a launch template, you can override parameters that are specified in the launch template. To launch instances with a Nitro instance type when using a launch template, use this control in conjunction with related proactive controls.

#### Remediation for rule failure

When InstanceType in LaunchTemplateData has been provided, set InstanceType to an Amazon EC2 instance type that is based on the AWS Nitro system. When InstanceRequirements in LaunchTemplateData has been provided, set AllowedInstanceTypes to a list of Amazon EC2 instance types based on the AWS Nitro system.

The examples that follow show how to implement this remediation.
Amazon EC2 Launch Template - Example One

An Amazon EC2 launch template configured with an instance type based on the AWS Nitro system. The example is shown in JSON and in YAML.

JSON example

```
{
   "LaunchTemplate": {
       "Type": "AWS::EC2::LaunchTemplate",
       "Properties": {
           "LaunchTemplateData": {
               "InstanceType": "t3.micro"
           }
       }
   }
}
```

YAML example

```
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      InstanceType: t3.micro
```

The examples that follow show how to implement this remediation.

Amazon EC2 Launch Template - Example Two

An Amazon EC2 launch template configured with an instance requirements configuration that includes allowed instances based on the AWS Nitro system. The example is shown in JSON and in YAML.

JSON example

```
{  
    "Proactive controls": 
    "929"
}
```
"LaunchTemplate": {
    "Type": "AWS::EC2::LaunchTemplate",
    "Properties": {
        "LaunchTemplateData": {
            "InstanceRequirements": {
                "AllowedInstanceTypes": [
                    "m5.*",
                    "c5.*"
                ],
                "VCpuCount": {
                    "Max": 16,
                    "Min": 1
                },
                "MemoryMiB": {
                    "Min": 1024,
                    "Max": 17000
                }
            }
        }
    }
}
CT.EC2.PR.15 rule specification

# ###################################################################
##       Rule Specification        ##
###################################################################

# Rule Identifier:
#   ec2_launch_template_nitro_instance_type_check
#
# Description:
#   This control checks whether Amazon EC2 launch templates that specify an Amazon
# EC2 instance type or use attribute based instance selection, specify only AWS Nitro
# instance types.
#
# Reports on:
#   AWS::EC2::LaunchTemplate
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Amazon EC2 instance resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon EC2 instance resource
#     And: 'InstanceType' or 'InstanceRequirements' in 'LaunchTemplateData' has not
# been provided
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon EC2 instance resource
#     And: 'InstanceType' in 'LaunchTemplateData' has been provided
#     And: 'InstanceType' has been set to a non-Nitro instance type
#     Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 instance resource
And: 'InstanceRequirements' in 'LaunchTemplateData' has been provided as a struct
And: In 'InstanceRequirements', 'AllowedInstanceTypes' has not been provided or provided as an empty list
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 instance resource
And: 'InstanceRequirements' in 'LaunchTemplateData' has been provided as a struct
And: In 'InstanceRequirements', 'AllowedInstanceTypes' has been provided as a non-empty list
that contains one or more non-Nitro instance types
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 instance resource
And: 'InstanceType' in 'LaunchTemplateData' has been provided
And: 'InstanceType' has been set to a Nitro instance type
Then: PASS

Scenario: 7
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 instance resource
And: 'InstanceRequirements' in 'LaunchTemplateData' has been provided as a struct
And: In 'InstanceRequirements', 'AllowedInstanceTypes' has been provided as a non-empty list
that contains only Nitro instance types
Then: PASS

# Constants
let INPUT_DOCUMENT = this
let EC2_LAUNCH_TEMPLATE_TYPE = "AWS::EC2::LaunchTemplate"
let NITRO_INSTANCE_TYPES = [
# Assignments

Let `ec2_launch_templates = Resources.*[ Type == %EC2_LAUNCH_TEMPLATE_TYPE ]`

# Primary Rules

Rule `ec2_launch_template_nitro_instance_type_check` when

- `is_cfn_template(%INPUT_DOCUMENT)`
- `%ec2_launch_templates not empty`

{ check(%ec2_launch_templates.Properties) <<

[CT.EC2.PR.15]: Require an Amazon EC2 instance to use an AWS Nitro instance type when creating from the 'AWS::EC2::LaunchTemplate' resource type

[FIX]: When `InstanceType` in `LaunchTemplateData` has been provided, set `InstanceType` to an Amazon EC2 instance type that is based on the AWS Nitro system.

When `InstanceRequirements` in `LaunchTemplateData` has been provided, set `AllowedInstanceTypes` to a list of Amazon EC2 instance types based on the AWS Nitro system.

>>

Proactive controls
rule ec2_launch_template_nitro_instance_type_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_LAUNCH_TEMPLATE_TYPE) {
    check(%INPUT_DOCUMENT.%EC2_LAUNCH_TEMPLATE_TYPE.resourceProperties)
    <=

    [CT.EC2.PR.15]: Require an Amazon EC2 instance to use an AWS Nitro instance
type when creating from the 'AWS::EC2::LaunchTemplate' resource type

    [FIX]: When InstanceType in LaunchTemplateData has been provided, set
    InstanceType to an Amazon EC2 instance type that is based on the AWS Nitro system.
    When InstanceRequirements in LaunchTemplateData has been provided,
    set AllowedInstanceTypes to a list of Amazon EC2 instance types based on the
    AWS Nitro system.

    >>
}

# # Parameterized Rules #
rule check(ec2_launch_template) {
    %ec2_launch_template[
        # Scenario 2
        filter_instance_type_provided(this)
    ] {
        LaunchTemplateData {
            # Scenarios 3 and 6
            InstanceType in %NITRO_INSTANCE_TYPES
        }
    }

    %ec2_launch_template[
        # Scenario 2
        filter_instance_requirements_provided(this)
    ] {
        LaunchTemplateData {
            InstanceRequirements is_struct
            InstanceRequirements {
                # Scenarios 4, 5 and 7
                AllowedInstanceTypes exists
                AllowedInstanceTypes is_list
                AllowedInstanceTypes not empty
                AllowedInstanceTypes[*] in %NITRO_INSTANCE_TYPES
            }
        }
    }
}
rule filter_instance_type_provided(ec2_launch_template)
%
%ec2_launch_template {
  LaunchTemplateData exists
  LaunchTemplateData is_struct

  LaunchTemplateData {
    InstanceType exists
  }
}

rule filter_instance_requirements_provided(ec2_launch_template)
%
%ec2_launch_template {
  LaunchTemplateData exists
  LaunchTemplateData is_struct

  LaunchTemplateData {
    InstanceRequirements exists
  }
}

# Utility Rules
#
rule is_cfn_template(doc)
%
%doc {
  AWSTemplateFormatVersion exists or
  Resources exists
}

rule is_cfn_hook(doc, RESOURCE_TYPE)
%
%doc.%RESOURCE_TYPE.resourceProperties exists
CT.EC2.PR.15 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      InstanceType: t3.micro

PASS Example - Use this template to verify a compliant resource creation.

Resources:
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      InstanceRequirements:
        AllowedInstanceTypes:
        - m5.*
        - c5.*
      V Cp uCount:
        Max: 16
        Min: 1
      MemoryMiB:
        Min: 1024
        Max: 17000

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
Properties:
  LaunchTemplateData:
    InstanceType: t2.micro

[CT.EC2.PR.16] Require an Amazon EC2 instance to use an AWS Nitro instance type when created using the 'AWS::EC2::Instance' resource type

This control checks whether an Amazon EC2 instance is configured to run using an AWS Nitro instance type.

- **Control objective:** Protect data integrity, Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::Instance
- **AWS CloudFormation guard rule:** [CT.EC2.PR.16 rule specification](#)
Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.16 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.EC2.PR.16 example templates](#)

Explanation

The Nitro System is a collection of hardware and software components built by AWS to enable high performance, high availability, and high security. The Nitro System provides enhanced security because it continuously monitors, protects, and verifies the instance's hardware and firmware. Virtualization resources are offloaded to dedicated hardware and software, minimizing the attack surface. The Nitro System security model is locked down to prohibit administrative access, reducing the possibility of human error and tampering.

#### Usage considerations

- This control requires that the InstanceType property is provided and set to a Nitro instance type. This setting prevents you from inheriting an instance type, by way of an Amazon EC2 launch template.

Remediation for rule failure

Set the value of the InstanceType property to an Amazon EC2 instance type based on the AWS Nitro system.

The examples that follow show how to implement this remediation.

Amazon EC2 Instance - Example

An Amazon EC2 instance configured with an instance type based on the AWS Nitro system. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "EC2Instance": {
```
"Type": "AWS::EC2::Instance",
"Properties": {
  "ImageId": {
    "Ref": "LatestAmiId"
  },
  "InstanceType": "t3.micro"
}
}

**YAML example**

EC2Instance:
  Type: AWS::EC2::Instance
  Properties:
    ImageId: !Ref 'LatestAmiId'
    InstanceType: t3.micro

**CT.EC2.PR.16 rule specification**

```yaml
# ###################################################################
## Rule Specification    ##
# ###################################################################
#
# Rule Identifier:
#   ec2_instance_nitro_instance_type_check
#
# Description:
#   This control checks whether an Amazon EC2 instance is configured to run using an
#   AWS Nitro instance type.
#
# Reports on:
#   AWS::EC2::Instance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
```
None

Scenarios:

Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any Amazon EC2 instance resources
Then: SKIP

Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 instance resource
And: 'InstanceType' has not been provided
Then: FAIL

Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 instance resource
And: 'InstanceType' been provided and set to a non-Nitro instance type
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 instance resource
And: 'InstanceType' been provided and set to a Nitro instance type
Then: PASS

Constants

let INPUT_DOCUMENT = this
let EC2_INSTANCE_TYPE = "AWS::EC2::Instance"
let NITRO_INSTANCE_TYPES = [
  /^a1\./,
  /^c5\./, /^c5a\./, /^c5ad\./, /^c5d\./, /^c5n\./, /^c6a\./, /^c6g\./, /^c6gd\./, /^c6gn\./, /^c6i\./, /^c6id\./, /^c6in\./, /^c7g\./, /^c7gd\./, /^c7gn\./, /^c7i\./, /^d\./, /^d3en\./, /^d11\./, /^g4ad\./, /^g4dn\./, /^g5\./, /^g5g\./,
  /^hpc6a\./, /^hpc6id\./, /^hpc7a\./, /^hpc7g\./,
  /^i3\..metal$/, /^i3en\./, /^i4g\./, /^i4i\./, /^im4gn\./, /^inf1\./, /^inf2\./, /^is4gen\./,
  /^m5\./, /^m5a\./, /^m5ad\./, /^m5d\./, /^m5dn\./, /^m5n\./, /^m5zn\./, /^m6a\./, /^m6g\./, /^m6gd\./, /^m6i\./, /^m6id\./, /^m6idn\./, /^m6in\./, /^m7a\./, /^m7g\./, /
let ec2_instances = Resources.*[ Type == %EC2_INSTANCE_TYPE ]

rule ec2_instance_nitro_instance_type_check when is_cfn_template(%INPUT_DOCUMENT) {
  check(%ec2_instances.Properties)
  %ec2_instances not empty {
    [CT.EC2.PR.16]: Require an Amazon EC2 instance to use an AWS Nitro instance type when created using the 'AWS::EC2::Instance' resource type
    [FIX]: Set the value of the InstanceType property to an Amazon EC2 instance type based on the AWS Nitro system.
  } >>
}

rule ec2_instance_nitro_instance_type_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_INSTANCE_TYPE) {
  check(%INPUT_DOCUMENT.%EC2_INSTANCE_TYPE.resourceProperties)
  <<
    [CT.EC2.PR.16]: Require an Amazon EC2 instance to use an AWS Nitro instance type when created using the 'AWS::EC2::Instance' resource type
    [FIX]: Set the value of the InstanceType property to an Amazon EC2 instance type based on the AWS Nitro system.
  } >>
}
# Parameterized Rules

```ruby
rule check(ec2_instance) {
  %ec2_instance {
    # Scenario 2
    InstanceType exists
    # Scenarios 3 and 4
    InstanceType in %NITRO_INSTANCE_TYPES
  }
}
```

# Utility Rules

```ruby
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```ruby
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

## CT.EC2.PR.16 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Parameters:**

- **LatestAmiId:**
  - **Description:** Region specific latest AMI ID from the Parameter Store
  - **Type:** AWS::SSM::Parameter::Value "AWS::EC2::Image::Id"
  - **Default:** /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

**Resources:**

- **EC2Instance:**
  - **Type:** AWS::EC2::Instance
  - **Properties:**
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:

LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value "AWS::EC2::Image::Id"
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:

EC2Instance:
  Type: AWS::EC2::Instance
  Properties:
    ImageId:
      Ref: LatestAmiId
    InstanceType: t2.micro

[CT.EC2.PR.17] Require an Amazon EC2 dedicated host to use an AWS Nitro instance type

This control checks whether an Amazon EC2 dedicated host is configured to run using an AWS Nitro instance type or family.

- **Control objective:** Protect data integrity, Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::Host
- **AWS CloudFormation guard rule:** [CT.EC2.PR.17 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.17 rule specification](#)
AWS Control Tower

For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.EC2.PR.17 example templates](#)

**Explanation**

The Nitro System is a collection of hardware and software components built by AWS to enable high performance, high availability, and high security. The Nitro System provides enhanced security because it continuously monitors, protects, and verifies the instance's hardware and firmware. Virtualization resources are offloaded to dedicated hardware and software, minimizing the attack surface. The Nitro System security model is locked down to prohibit administrative access, reducing the possibility of human error and tampering.

**Usage considerations**

- When you allocate a dedicated host in your account, you can choose a configuration that supports either a single instance type, or multiple instance types within the same instance family. The number of instances that you can run on a host depends on the configuration you choose. See [Instance capacity configurations](#) in the *Amazon EC2 User Guide for Linux Instances* for information about support for single instance types and multiple instance types.

**Remediation for rule failure**

Set the value of the InstanceType property to an Amazon EC2 instance type that is based on the AWS Nitro system, and that supports dedicated hosts, or set the value of the InstanceFamily property to an Amazon EC2 instance family that is based on the AWS Nitro system, and that supports dedicated hosts and multiple instance types.

The examples that follow show how to implement this remediation.

**Amazon EC2 Host - Example One**

An Amazon EC2 dedicated host configured with an instance family that is based on the AWS Nitro system, and that supports dedicated hosts and multiple instance types. The example is shown in JSON and in YAML.

**JSON example**


```json
{
    "DedicatedHost": {
        "Type": "AWS::EC2::Host",
        "Properties": {
            "AutoPlacement": "on",
            "AvailabilityZone": {
                "Fn::Select": [
                    0,
                    {
                        "Fn::GetAZs": ""
                    }
                ],
                "InstanceFamily": "m5"
            }
        }
    }
}
```

**YAML example**

```yaml
DedicatedHost:
  Type: AWS::EC2::Host
  Properties:
    AutoPlacement: 'on'
    AvailabilityZone: !Select
      - 0
      - !GetAZs ''
    InstanceFamily: m5
```

The examples that follow show how to implement this remediation.

**Amazon EC2 Host - Example Two**

An Amazon EC2 dedicated host configured with an instance type that is based on the AWS Nitro system, and that supports dedicated hosts. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "DedicatedHost": {
        "Type": "AWS::EC2::Host",
        "Properties": {
            "AutoPlacement": "on",
            "AvailabilityZone": {
                "Fn::Select": [
                    0,
                    {
                        "Fn::GetAZs": ""
                    }
                ],
                "InstanceFamily": "m5"
            }
        }
    }
}
```
```json
{
    "DedicatedHost": {
        "Type": "AWS::EC2::Host",
        "Properties": {
            "AutoPlacement": "on",
            "AvailabilityZone": {
                "Fn::Select": [
                    0,
                    {
                        "Fn::GetAZs": ""
                    }
                ]
            },
            "InstanceType": "m6a.large"
        }
    }
}
```

### YAML example

```yaml
DedicatedHost:
  Type: AWS::EC2::Host
  Properties:
    AutoPlacement: 'on'
    AvailabilityZone: !Select
      - 0
      - !GetAZs ''
  InstanceType: m6a.large
```

### CT.EC2.PR.17 rule specification

```
# #*******************************************************************************
##       Rule Specification          ##
#*******************************************************************************
#
# Rule Identifier: Proactive controls
# 946
```
# ec2_host_nitro_check
#
# Description:
# This control checks whether an Amazon EC2 dedicated host is configured to run using
# an AWS Nitro instance type or family.
#
# Reports on:
# AWS::EC2::Host
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any Amazon EC2 dedicated host resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Amazon EC2 dedicated host resource
# And: 'InstanceFamily' or 'InstanceType' have not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Amazon EC2 dedicated host resource
# And: 'InstanceType' has not been provided
# And: 'InstanceFamily' has been provided and set to an instance family other than
# a Nitro instance family with support for both dedicated hosts and multiple
# instance types
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Amazon EC2 dedicated host resource
# And: 'InstanceFamily' has not been provided
# And: 'InstanceType' has been provided and set to an instance type other than
# a Nitro instance type with dedicated host support
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Amazon EC2 dedicated host resource
# And: 'InstanceType' has not been provided
# And: 'InstanceFamily' has been provided and set to a Nitro instance family with support for both dedicated hosts and multiple instance types
# Then: PASS
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Amazon EC2 dedicated host resource
# And: 'InstanceFamily' has not been provided
# And: 'InstanceType' has been provided and set to a Nitro instance type with dedicated host support
# Then: PASS

# Constants

let INPUT_DOCUMENT = this
let EC2_DEDICATED_HOST_TYPE = "AWS::EC2::Host"
let NITRO_INSTANCE_FAMILIES_WITH_DEDICATED_HOST_SUPPORT = [
    /^a1$/,
    /^m5$/, /^m5n$/, /^m6i$/,
    /^c5$/, /^c5n$/, /^c6i$/,
    /^r5$/, /^r5n$/, /^r6i$/,
    /^t3$/
]
let NITRO_INSTANCE_TYPES_WITH_DEDICATED_HOST_SUPPORT = [
    /^a1\./,
    /^c5\./, /^c5d\./, /^c5n\./, /^c6a\./, /^c6g\./, /^c6gd\./, /^c6gn\./, /^c6i\./, / ^c6id\./, /^c6in\./, /^c7g\./, /^c7gd\./, /^c7gn\./, /^c7i\./,
    /^d11\./,
    /^g4ad\./, /^g4dn\./, /^g5\./, /^g5g\./,
    /^i3\./, /^i3en\./, /^i4g\./, /^i4i\./, /^im4gn\./, /^inf1\./, /^inf2\./,
    /^m5\./, /^m5d\./, /^m5dn\./, /^m5n\./, /^m5zn\./, /^m6a\./, /^m6g\./, /^m6gd\./, / ^m6i\./, /^m6id\./, /^m6idn\./, /^m6in\./, /^m7a\./, /^m7g\./, /^m7gd\./, /^m7i\./,
    /^mac1\./, /^mac2\./, /^mac2-m2pro\./, /^mac2-m2pro\./, /^mac2\./,
    /^p4d\./, /^p4de\./, /^p5\./,
    /^r5\./, /^r5b\./, /^r5d\./, /^r5dn\./, /^r5n\./, /^r6a\./, /^r6g\./, /^r6gd\./, / ^r6id\./, /^r6idn\./, /^r6in\./, /^r7a\./, /^r7g\./, /^r7gd\./, /^r7id\./,
let ec2_dedicated_hosts = Resources.*[ Type == %EC2_DEDICATED_HOST_TYPE ]

rule ec2_host_nitro_check when is_cfn_template(%INPUT_DOCUMENT) {
  %ec2_dedicated_hosts not empty {
    check(%ec2_dedicated_hosts.Properties)
    =>
    [CT.EC2.PR.17]: Require an Amazon EC2 dedicated host to use an AWS Nitro instance type
    [FIX]: Set the value of the InstanceType property to an Amazon EC2 instance type that is based on the AWS Nitro system, and
    that supports dedicated hosts, or set the value of the InstanceFamily property to an Amazon EC2 instance family that is based on the AWS Nitro system, and that supports dedicated hosts and multiple instance types.
  } =>
}

rule ec2_host_nitro_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_DEDICATED_HOST_TYPE) {
  check(%INPUT_DOCUMENT.%EC2_DEDICATED_HOST_TYPE.resourceProperties)
  =>
  [CT.EC2.PR.17]: Require an Amazon EC2 dedicated host to use an AWS Nitro instance type
  [FIX]: Set the value of the InstanceType property to an Amazon EC2 instance type that is based on the AWS Nitro system, and
  that supports dedicated hosts, or set the value of the InstanceFamily property to an Amazon EC2 instance family that is based on the AWS Nitro system, and that supports dedicated hosts and multiple instance types.
} =>

#
# Parameterized Rules

```
# rule check(ec2_dedicated_host) {
%ec2_dedicated_host {
    # Scenario 2
    InstanceFamily exists or
    InstanceType exists
}

%ec2_dedicated_host[
    InstanceFamily exists
] {
    # Scenario 3 and 5
    InstanceFamily in %NITRO_INSTANCE_FAMILIES_WITH_DEDICATED_HOST_SUPPORT
}

%ec2_dedicated_host[
    InstanceType exists
] {
    # Scenario 4 and 6
    InstanceType in %NITRO_INSTANCE_TYPES_WITH_DEDICATED_HOST_SUPPORT
}
}

# Utility Rules

# rule is_cfn_template(doc) {
%doc {
    AWSTemplateFormatVersion exists or
    Resources exists
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```
PASS Example - Use this template to verify a compliant resource creation.

Resources:
  DedicatedHost:
    Type: AWS::EC2::Host
    Properties:
      AutoPlacement: 'on'
      AvailabilityZone:
        Fn::Select:
        - 0
        - Fn::GetAZs: ''
      InstanceFamily: m5

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  DedicatedHost:
    Type: AWS::EC2::Host
    Properties:
      AutoPlacement: 'on'
      AvailabilityZone:
        Fn::Select:
        - 0
        - Fn::GetAZs: ''
      InstanceType: m6a.large

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  DedicatedHost:
    Type: AWS::EC2::Host
    Properties:
      AutoPlacement: 'on'
      AvailabilityZone:
[CT.EC2.PR.18] Require an Amazon EC2 fleet to override only those launch templates with AWS Nitro instance types

This control checks that Amazon EC2 fleets only override launch templates with AWS Nitro instance types.

- **Control objective:** Protect data integrity, Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::EC2Fleet
- **AWS CloudFormation guard rule:** CT.EC2.PR.18 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.EC2.PR.18 rule specification
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: CT.EC2.PR.18 example templates

Explanation

The Nitro System is a collection of hardware and software components built by AWS to enable high performance, high availability, and high security. The Nitro System provides enhanced security because it continuously monitors, protects, and verifies the instance's hardware and firmware. Virtualization resources are offloaded to dedicated hardware and software, minimizing the attack surface. The Nitro System security model is locked down to prohibit administrative access, reducing the possibility of human error and tampering.
Usage considerations

- This control applies only when launch template overrides have been provided, specifically, entries in LaunchTemplateConfigs specifying one or more Overrides that also include values for InstanceType or InstanceRequirements properties.
- This control does not check the instance type configured on a launch template. To ensure that launch templates use Nitro instances types, use this control in conjunction with related controls that check launch templates for Nitro instance types.

Remediation for rule failure

For any entry in the LaunchTemplateConfigs parameter, if it has one or more Overrides properties that also include InstanceType or InstanceRequirements fields, set the value of the InstanceType field to an EC2 instance type based on the AWS Nitro system, or set the value of the AllowedInstanceTypes field in the InstanceRequirements property to one or more EC2 instance types that are based on the AWS Nitro system.

The examples that follow show how to implement this remediation.

Amazon EC2 Fleet - Example One

An Amazon EC2 fleet configured with a launch template override and instance type based on the AWS Nitro system. The example is shown in JSON and in YAML.

JSON example

```json
{
  "EC2Fleet": {
    "Type": "AWS::EC2::EC2Fleet",
    "Properties": {
      "TargetCapacitySpecification": {
        "TotalTargetCapacity": 1,
        "DefaultTargetCapacityType": "on-demand"
      },
      "LaunchTemplateConfigs": [
        {
          "LaunchTemplateSpecification": {
            "LaunchTemplateId": {
            ...
```
"Ref": "LaunchTemplate",
},
"Version": {
  "Fn::GetAtt": [
    "LaunchTemplate",
    "LatestVersionNumber"
  ]
},
"Overrides": [
  {
    "InstanceType": "t3.micro"
  }
]
}
}

YAML example

EC2Fleet:
  Type: AWS::EC2::EC2Fleet
Properties:
  TargetCapacitySpecification:
    TotalTargetCapacity: 1
    DefaultTargetCapacityType: on-demand
  LaunchTemplateConfig:
    LaunchTemplateSpecification:
      LaunchTemplateId: !Ref 'LaunchTemplate'
      Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
    Overrides:
      - InstanceType: t3.micro

The examples that follow show how to implement this remediation.
Amazon EC2 Fleet - Example Two

An Amazon EC2 fleet configured with a launch template override and instance requirements that specify a list of allowed instances based on the AWS Nitro system. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "EC2Fleet": {
        "Type": "AWS::EC2::EC2Fleet",
        "Properties": {
            "TargetCapacitySpecification": {
                "TotalTargetCapacity": 1,
                "DefaultTargetCapacityType": "on-demand"
            },
            "LaunchTemplateConfigs": [
                {
                    "LaunchTemplateSpecification": {
                        "LaunchTemplateId": {
                            "Ref": "LaunchTemplate"
                        },
                        "Version": {
                            "Fn::GetAtt": [
                                "LaunchTemplate",
                                "LatestVersionNumber"
                            ]
                        }
                    }
                },
                "Overrides": {
                    "InstanceRequirements": {
                        "VCpuCount": {
                            "Min": 2,
                            "Max": 4
                        },
                        "MemoryMiB": {
                            "Min": 4000,
                            "Max": 8000
                        },
                        "AllowedInstanceTypes": [
                            "m5.*"
                        ]
                    }
                }
            }
        }
    }
}
```
YAML example

EC2Fleet:
  Type: AWS::EC2::EC2Fleet
  Properties:
    TargetCapacitySpecification:
      TotalTargetCapacity: 1
      DefaultTargetCapacityType: on-demand
  LaunchTemplateConfigs:
    - LaunchTemplateSpecification:
        LaunchTemplateId: !Ref 'LaunchTemplate'
        Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
  Overrides:
    - InstanceRequirements:
        VcpuCount:
          Min: 2
          Max: 4
        MemoryMiB:
          Min: 4000
          Max: 8000
        AllowedInstanceTypes:
          - m5.*
          - c5.*

CT.EC2.PR.18 rule specification

# ###################################################################
## Rule Specification

### Rule Identifier:
- ec2_fleet_nitro_instance_override_check

### Description:
This control checks that Amazon EC2 fleets only override launch templates with AWS Nitro instance types.

### Reports on:
- AWS::EC2::EC2Fleet

### Evaluates:
- AWS CloudFormation, AWS CloudFormation hook

### Rule Parameters:
- None

### Scenarios:
#### Scenario: 1
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
- And: The input document does not contain any Amazon EC2 fleet resources
- Then: SKIP

#### Scenario: 2
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
- And: The input document contains an Amazon EC2 fleet resource
- And: For every entry in 'LaunchTemplateConfigs', 'Overrides' has not been provided
- Or has been provided as an empty list
- Then: SKIP

#### Scenario: 3
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
- And: The input document contains an Amazon EC2 fleet resource
- And: For an entry in 'LaunchTemplateConfigs', 'Overrides' has been provided as a non-empty list
- And: For the same entry in 'LaunchTemplateConfigs', no entries in 'Overrides' include 'InstanceType' or 'InstanceRequirements'
- Then: SKIP

#### Scenario: 4
- Scenario: 4
# Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 fleet resource
And: 'Overrides' in 'LaunchTemplateConfigs' has been provided as a non-empty list
And: For an entry in 'Overrides', 'InstanceType' has been provided and set to an instance type
Then: FAIL

# Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 fleet resource
And: 'Overrides' in 'LaunchTemplateConfigs' has been provided as a non-empty list
And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has not been provided or has been provided as an empty list
Then: FAIL

# Scenario: 7
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 fleet resource
And: 'Overrides' in 'LaunchTemplateConfigs' has been provided as a non-empty list
And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has not been provided as a non-empty list
And: An entry in 'AllowedInstanceTypes' is set to an instance type other than a Nitro instance type
Then: FAIL

# Scenario: 8
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 fleet resource
And: 'Overrides' in 'LaunchTemplateConfigs' has been provided as a non-empty list
And: For an entry in 'Overrides', 'InstanceType' has been provided and set to a Nitro instance type
Then: PASS
And: The input document contains an Amazon EC2 fleet resource
And: 'Overrides' in 'LaunchTemplateConfigs' has been provided as a non-empty list
And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has not been provided as a non-empty list
And: Every entry in 'AllowedInstanceTypes' is set to a Nitro instance type
Then: PASS

# Constants

let INPUT_DOCUMENT = this
let EC2_FLEET_TYPE = "AWS::EC2::EC2Fleet"

let NITRO_INSTANCE_TYPES = [
  /^a1\./,
  /^c5\./, /^c5a\./, /^c5ad\./, /^c5d\./, /^c5n\./, /^c6a\./, /^c6g\./, /^c6gd\./, /\n  /^c6gn\./, /^c6i\./, /^c6id\./, /^c6in\./, /^c7g\./, /^c7gd\./, /^c7gn\./, /^c7i\./,
  /\d\./, /\d3en\./, /\d1l\./,
  /\g4ad\./, /\g4dn\./, /\g5\./, /\^g5g\./,
  /\hpc6a\./, /\hpc6id\./, /\hpc7a\./, /\hpc7g\./,
  /\i3\.metal\$/, /\i3en\./, /\i4g\./, /\i4i\./, /\im4gn\./, /\inf1\./, /\inf2\./, /\n  ^is4gen\./,
  /\m5\./, /\^m5a\./, /\m5ad\./, /\m5d\./, /\m5dn\./, /\m5n\./, /\^m6a\./, /\n  /^m6\./, /\m6gd\./, /\m6i\./, /\m6id\./, /\m6idn\./, /\m6in\./, /\^m7a\./, /\^m7g\./, /\n  /\m7gd\./, /\m7i\./, /\m7i-flex\./, /\mac1\.metal\$/, /\mac2\-m2pro\.metal\$/, /\mac2\.metal $/,
  /\^p3dn\./, /\^p4d\./, /\^p4de\./, /\^p5\./,
  /\^r5\./, /\^r5a\./, /\^r5ad\./, /\^r5b\./, /\^r5d\./, /\^r5dn\./, /\^r5n\./, /\^r6a\./, /\n  /\^r6\./, /\^r6gd\./, /\^r6i\./, /\^r6id\./, /\^r6idn\./, /\^r6in\./, /\^r7a\./, /\^r7g\./, /\n  /\^r7gd\./, /\^r71z\./,
  /\^t3\./, /\^t3a\./, /\^t4g\./, /\^trn1\./, /\^trn1n\./,
  /\^u-12tb1\./, /\^u-18tb1\./, /\^u-24tb1\./, /\^u-3tb1\./, /\^u-6tb1\./, /\^u-9tb1\./,
  /\^vt1\./,
  /\^x2gd\./, /\^x2idn\./, /\^x2iedn\./, /\^x2iez\./,
  /\^z1d\./
]\n
# Assignments

let ec2_fleets = Resources.*[ Type == %EC2_FLEET_TYPE ]
# Primary Rules

```python
rule ec2_fleet_nitro_instance_override_check when is_cfn_template(%INPUT_DOCUMENT)
    %ec2_fleets not empty {

    check(%ec2_fleets.Properties)
    <<
    [CT.EC2.PR.18]: Require an Amazon EC2 fleet to override only those launch templates with AWS Nitro instance types
    [FIX]: For any entry in the LaunchTemplateConfigs parameter, if it has one or more Overrides properties that also include 'InstanceType' or 'InstanceRequirements' fields, set the value of the 'InstanceType' field to an Amazon EC2 instance type based on the AWS Nitro system, or set the value of the 'AllowedInstanceTypes' field in the InstanceRequirements property to one or more Amazon EC2 instance types that are based on the AWS Nitro system.
    >>
}

rule ec2_fleet_nitro_instance_override_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_FLEET_TYPE) {
    check(%INPUT_DOCUMENT.%EC2_FLEET_TYPE.resourceProperties)
    <<
    [CT.EC2.PR.18]: Require an Amazon EC2 fleet to override only those launch templates with AWS Nitro instance types
    [FIX]: For any entry in the LaunchTemplateConfigs parameter, if it has one or more Overrides properties that also include 'InstanceType' or 'InstanceRequirements' fields, set the value of the 'InstanceType' field to an Amazon EC2 instance type based on the AWS Nitro system, or set the value of the 'AllowedInstanceTypes' field in the InstanceRequirements property to one or more Amazon EC2 instance types that are based on the AWS Nitro system.
    >>
}
```

# Parameterized Rules

```python
rule check(ec2_fleet) {
    %ec2_fleet [
        # Scenarios 2 and 3
        filter_launch_template_overrides(this)
    ] {

    LaunchTemplateConfigs[*] {
        Overrides[ InstanceType exists ] {
            # Scenarios 4 and 7
            InstanceType in %NITRO_INSTANCE_TYPES
```
Overrides[ InstanceRequirements exists ] { 
  
  InstanceRequirements { 
    
    # Scenarios 5, 6 and 8 
    AllowedInstanceTypes exists
    AllowedInstanceTypes is_list
    AllowedInstanceTypes not empty 
    AllowedInstanceTypes[*] in %NITRO_INSTANCE_TYPES
  }
  
  
}

rule filter_launch_template_overrides(ec2_fleet) {
  %ec2_fleet {
    
    LaunchTemplateConfigs exists
    LaunchTemplateConfigs is_list
    LaunchTemplateConfigs not empty

    some LaunchTemplateConfigs[*] { 
      
      Overrides exists
      Overrides is_list
      Overrides not empty

      some Overrides[*] { 
        InstanceType exists or 
        InstanceRequirements exists 
      }

    }

  }

}

# Utility Rules 
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}


rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.EC2.PR.18 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:

LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value "AWS::EC2::Image::Id"
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:

LaunchTemplate:
    Type: AWS::EC2::LaunchTemplate
    Properties:
        LaunchTemplateData:
            ImageId:
                Ref: LatestAmiId

EC2Fleet:
    Type: AWS::EC2::EC2Fleet
    Properties:
        TargetCapacitySpecification:
            TotalTargetCapacity: 1
            DefaultTargetCapacityType: on-demand
        LaunchTemplateConfigs:
            - LaunchTemplateSpecification:
                LaunchTemplateId:
                    Ref: LaunchTemplate
                Version:
                    Fn::GetAtt: [LaunchTemplate, LatestVersionNumber]
                Overrides:
                    - InstanceType: t3.micro
PASS Example - Use this template to verify a compliant resource creation.

Parameters:
LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value "AWS::EC2::Image::Id"
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateName:
      ImageId:
        Ref: LatestAmiId

EC2Fleet:
  Type: AWS::EC2::EC2Fleet
  Properties:
    TargetCapacitySpecification:
      TotalTargetCapacity: 1
      DefaultTargetCapacityType: on-demand
    LaunchTemplateConfigs:
      - LaunchTemplateSpecification:
          LaunchTemplateId:
            Ref: LaunchTemplate
          Version:
            Fn::GetAtt: [LaunchTemplate, LatestVersionNumber]
        Overrides:
          - InstanceRequirements:
              VcpuCount:
                Min: 2
                Max: 4
              MemoryMiB:
                Min: 4000
                Max: 8000
              AllowedInstanceTypes:
                - m5.*
                - c5.*

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Parameters:
LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value "AWS::EC2::Image::Id"
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      ImageId:
        Ref: LatestAmiId

EC2Fleet:
  Type: AWS::EC2::EC2Fleet
  Properties:
    TargetCapacitySpecification:
      TotalTargetCapacity: 1
      DefaultTargetCapacityType: on-demand
    LaunchTemplateConfigs:
    - LaunchTemplateSpecification:
      LaunchTemplateId:
        Ref: LaunchTemplate
      Version:
        Fn::GetAtt: [LaunchTemplate, LatestVersionNumber]
      Overrides:
      - InstanceType: t2.micro

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value "AWS::EC2::Image::Id"
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
LaunchTemplateData:
   ImageId:
      Ref: LatestAmiId

EC2Fleet:
   Type: AWS::EC2::EC2Fleet
   Properties:
      TargetCapacitySpecification:
         TotalTargetCapacity: 1
         DefaultTargetCapacityType: on-demand
   LaunchTemplateConfigs:
     - LaunchTemplateSpecification:
         LaunchTemplateId:
            Ref: LaunchTemplate
         Version:
            Fn::GetAtt: [LaunchTemplate, LatestVersionNumber]
   Overrides:
     - InstanceRequirements:
         V Cp u Count:
            Min: 0
            Max: 4
         MemoryMiB:
            Min: 0
            Max: 4000
     AllowedInstanceTypes:
        - c4.large

[CT.EC2.PR.19] Require an Amazon EC2 Amazon EC2 instance to use an AWS Nitro instance type that supports encryption in-transit between instances when created using the AWS::EC2::Instance resource type

This control checks whether an Amazon EC2 instance has been configured to run using a Nitro instance type that supports encryption in-transit between instances.

- **Control objective**: Encrypt data in transit, Protect data integrity, Enforce least privilege

- **Implementation**: AWS CloudFormation guard rule

- **Control behavior**: Proactive

- **Resource types**: AWS::EC2::Instance

- **AWS CloudFormation guard rule**: [CT.EC2.PR.19 rule specification](#)
Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.19 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.EC2.PR.19 example templates](#)

Explanation

The Nitro System is a collection of hardware and software components built by AWS to enable high performance, high availability, and high security. The Nitro System provides enhanced security because it continuously monitors, protects, and verifies the instance's hardware and firmware. Virtualization resources are offloaded to dedicated hardware and software, minimizing the attack surface. The Nitro System security model is locked down to prohibit administrative access, reducing the possibility of human error and tampering.

AWS provides secure and private connectivity between Amazon EC2 instances of all types. In addition, some instance types utilize the offload capabilities of the underlying Nitro System hardware to encrypt in-transit traffic between instances, automatically. This encryption process uses Authenticated Encryption with Associated Data (AEAD) algorithms, with 256-bit encryption. It has no impact on network performance.

Usage considerations

- This control requires that the InstanceType property is provided and set to a Nitro instance type that supports encryption in transit between instances. This setting prevents you from inheriting an instance type by way of an Amazon EC2 launch template.
- To support in-transit traffic encryption between instances, in addition to using one of the Amazon EC2 instance types required by this control, the instances must be in the same Region, and they must be in the same VPC or group of peered VPCs, in which traffic does not pass through a virtual network device or service, such as a load balancer or a transit gateway.

Remediation for rule failure

Set InstanceType to an Amazon EC2 instance type based on the AWS Nitro system that supports encryption in-transit between instances.
The examples that follow show how to implement this remediation.

**Amazon EC2 Instance - Example**

An Amazon EC2 instance configured with an instance type based on the AWS Nitro system, and that supports encryption in transit between instances. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "EC2Instance": {
        "Type": "AWS::EC2::Instance",
        "Properties": {
            "ImageId": {
                "Ref": "LatestAmiId"
            },
            "InstanceType": "t3.micro"
        }
    }
}
```

**YAML example**

```
EC2Instance:
  Type: AWS::EC2::Instance
  Properties:
    ImageId: !Ref 'LatestAmiId'
    InstanceType: t3.micro
```

**CT.EC2.PR.19 rule specification**

```yaml
# ################################################################
## Rule Specification ##
# ################################################################
# Rule Identifier:
#   ec2_instance_nitro_encryption_in_transit_check

Proactive controls

967```
# Description:
# This control checks whether an Amazon EC2 instance has been configured to run using a Nitro instance type that supports encryption in-transit between instances.
#
# Reports on:
# AWS::EC2::Instance
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any Amazon EC2 instance resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 instance resource
# And: 'InstanceType' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 instance resource
# And: 'InstanceType' been provided and set to an instance type other than a Nitro instance type that supports encryption in-transit between instances
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 instance resource
# And: 'InstanceType' been provided and set to a Nitro instance type that supports encryption in-transit between instances
# Then: PASS
# Constants
#
let INPUT_DOCUMENT = this
let EC2_INSTANCE_TYPE = "AWS::EC2::Instance"
let NITRO_ENCRYPTION_IN_TRANSIT_INSTANCE_TYPES = [
  /^c5a\./, /^c5ad\./, /^c5n\./, /^c6a\./, /^c6gn\./, /^c6i\./, /^c6id\./, /^c6in\./, /^c7g\./, /^c7gd\./, /^c7gn\./, /^c7i\./, 
  /^d3\./, /^d3en\./, /^d1l\./, 
  /^g4ad\./, /^g4dn\./, /^g5\./, 
  /^hpc6a\./, /^hpc6id\./, /^hpc7a\./, /^hpc7g\./, 
  /^i3en\./, /^i4g\./, /^i4i\./, /^im4gn\./, /^inf1\./, /^inf2\./, /^is4gen\./, 
  /^m5dn\./, /^m5n\./, /^m5zn\./, /^m6a\./, /^m6i\./, /^m6id\./, /^m6idn\./, /^m6in\./, 
  /^m7a\./, /^m7g\./, /^m7gd\./, /^m7i\./, /^m7i-flex\./, 
  /^p3dn\./, /^p4d\./, /^p4de\./, /^p5\./, 
  /^r5dn\./, /^r5n\./, /^r6a\./, /^r6i\./, /^r6id\./, /^r6idn\./, /^r6in\./, /^r7a\./, /^r7g\./, /^r7gd\./, /^r7iz\./, 
  /^trn1\./, /^trn1n\./, 
  /^u-12tb1\./, /^u-18tb1\./, /^u-24tb1\./, /^u-3tb1\./, /^u-6tb1\./, /^u-9tb1\./, 
  /*vt1\./, 
   ^x2idn\./, /^x2iedn\./, /^x2iez\./
]
#
# Assignments
#
let ec2_instances = Resources.*[ Type == %EC2_INSTANCE_TYPE ]
#
# Primary Rules
#
rule ec2_instance_nitro_encryption_in_transit_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %ec2_instances not empty {
    check(%ec2_instances.Properties)
    <<
      [CT.EC2.PR.19]: Require an Amazon EC2 instance to use a nitro instance type that supports encryption in-transit between instances when created using the AWS::EC2::Instance resource type
      [FIX]: Set 'InstanceType' to an Amazon EC2 instance type based on the AWS Nitro system that supports encryption in-transit between instances.
    >>
  }
rule ec2_instance_nitro_encryption_in_transit_check when is_cfn_hook(%INPUT_DOCUMENT, %EC2_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%EC2_INSTANCE_TYPE.resourceProperties)
    <<
    [CT.EC2.PR.19]: Require an Amazon EC2 instance to use a nitro instance type that supports encryption in-transit between instances when created using the AWS::EC2::Instance resource type
    [FIX]: Set 'InstanceType' to an Amazon EC2 instance type based on the AWS Nitro system that supports encryption in-transit between instances.
    >>
}

# # Parameterized Rules #
#
rule check(ec2_instance) {
    %ec2_instance {
        # Scenario 2
        InstanceType exists
        # Scenarios 3 and 4
        InstanceType in %NITRO_ENCRYPTION_IN_TRANSIT_INSTANCE_TYPES
    }
}

# # Utility Rules #
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.EC2.PR.19 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
- LatestAmiId:
  - Description: Region specific latest AMI ID from the Parameter Store
  - Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
  - Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
- EC2Instance:
  - Type: AWS::EC2::Instance
  - Properties:
    - ImageId:
      - Ref: LatestAmiId
    - InstanceType: c5a.large

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
- LatestAmiId:
  - Description: Region specific latest AMI ID from the Parameter Store
  - Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
  - Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
- EC2Instance:
  - Type: AWS::EC2::Instance
  - Properties:
    - ImageId:
      - Ref: LatestAmiId
    - InstanceType: t2.micro
[CT.EC2.PR.20] Require an Amazon EC2 fleet to override only those launch templates with AWS Nitro instance types that support encryption in transit between instances

This control checks whether an Amazon EC2 fleet overrides only the launch templates based upon AWS Nitro instance types that support encryption in transit between instances.

- **Control objective:** Encrypt data in transit, Protect data integrity, Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EC2::EC2Fleet
- **AWS CloudFormation guard rule:** [CT.EC2.PR.20 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EC2.PR.20 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.EC2.PR.20 example templates](#)

**Explanation**

The Nitro System is a collection of hardware and software components built by AWS to enable high performance, high availability, and high security. The Nitro System provides enhanced security because it continuously monitors, protects, and verifies the instance's hardware and firmware. Virtualization resources are offloaded to dedicated hardware and software, minimizing the attack surface. The Nitro System security model is locked down to prohibit administrative access, reducing the possibility of human error and tampering.

AWS provides secure and private connectivity between Amazon EC2 instances of all types. In addition, some instance types utilize the offload capabilities of the underlying Nitro System hardware to encrypt in-transit traffic between instances, automatically. This encryption process uses Authenticated Encryption with Associated Data (AEAD) algorithms, with 256-bit encryption. It has no impact on network performance.
**Usage considerations**

- This control applies only when launch template overrides have been provided, specifically, entries in LaunchTemplateConfigs specifying one or more Overrides that also include values for InstanceType or InstanceRequirements properties.
- This control does not check the instance type configured on a launch template. To ensure that launch templates use Nitro instances types that support encryption in-transit between instances, use this control in conjunction with related controls that check launch templates for Nitro instance types, and that the Nitro instance types support encryption in transit between instances.
- To support in-transit traffic encryption between instances, in addition to using one of the EC2 instance types required by this control, the instances must be in the same AWS Region, and they must be in the same VPC or group of peered VPCs, in which traffic does not pass through a virtual network device or service, such as a load balancer or a transit gateway.

**Remediation for rule failure**

For any entry in the LaunchTemplateConfigs parameter, if it has one or more Overrides properties that also include InstanceType or InstanceRequirements fields, set the value of the InstanceType field to an Amazon EC2 instance type that's based on the AWS Nitro system, and that supports encryption in transit between instances, or set the value of the AllowedInstanceTypes field in the InstanceRequirements property to one or more Amazon EC2 instance types that are based on the AWS Nitro system, and that support encryption in transit between instances.

The examples that follow show how to implement this remediation.

**Amazon EC2 Fleet - Example One**

An Amazon EC2 fleet configured with a launch template override and instance type that is based on the AWS Nitro system, and that supports encryption in transit between instances. The example is shown in JSON and in YAML.

**JSON example**

```json
{
}
```
"EC2Fleet": {
    "Type": "AWS::EC2::EC2Fleet",
    "Properties": {
        "TargetCapacitySpecification": {
            "TotalTargetCapacity": 1,
            "DefaultTargetCapacityType": "on-demand"
        },
        "LaunchTemplateConfigs": [ 
            {
                "LaunchTemplateSpecification": {
                    "LaunchTemplateId": {
                        "Ref": "LaunchTemplate"
                    },
                    "Version": {
                        "Fn::GetAtt": [ 
                            "LaunchTemplate",
                            "LatestVersionNumber"
                        ]
                    }
                },
                "Overrides": [ 
                    {
                        "InstanceType": "c5a.large"
                    }
                ]
            }
        ]
    }
}

YAML example

EC2Fleet:
  Type: AWS::EC2::EC2Fleet
  Properties:
    TargetCapacitySpecification:
      TotalTargetCapacity: 1
      DefaultTargetCapacityType: on-demand
  LaunchTemplateConfigs:
    - LaunchTemplateSpecification:
LaunchTemplateId: !Ref 'LaunchTemplate'
Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
Overrides:
  - InstanceType: c5a.large

The examples that follow show how to implement this remediation.

**Amazon EC2 Fleet - Example Two**

An Amazon EC2 fleet configured with a launch template override and instance requirements that specify a list of allowed instances, that are based on the AWS Nitro system, and that support encryption in transit between instances. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "EC2Fleet": {
    "Type": "AWS::EC2::EC2Fleet",
    "Properties": {
      "TargetCapacitySpecification": {
        "TotalTargetCapacity": 1,
        "DefaultTargetCapacityType": "on-demand"
      },
      "LaunchTemplateConfigs": [
        {
          "LaunchTemplateSpecification": {
            "LaunchTemplateId": {
              "Ref": "LaunchTemplate"
            },
            "Version": {
              "Fn::GetAtt": [
                "LaunchTemplate",
                "LatestVersionNumber"
              ]
            }
          },
          "Overrides": [
            "InstanceRequirements": {
              "V Cp uCount": {
                "Proactive controls": 975
              }
            }
          ]
        }
      ]
    }
  }
}
```
YAML example

```yaml
EC2Fleet:
  Type: AWS::EC2::EC2Fleet
  Properties:
    TargetCapacitySpecification:
      TotalTargetCapacity: 1
      DefaultTargetCapacityType: on-demand
  LaunchTemplateConfigs:
    - LaunchTemplateSpecification:
        LaunchTemplateId: !Ref 'LaunchTemplate'
        Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
  Overrides:
    - InstanceRequirements:
        VcpuCount:
          Min: 2
          Max: 4
        MemoryMiB:
          Min: 4000
          Max: 8000
        AllowedInstanceTypes:
```

Proactive controls
CT.EC2.PR.20 rule specification

```
# ####################################################################
##       Rule Specification       ##
# ####################################################################
#
# Rule Identifier:
#   ec2_fleet_nitro_encryption_in_transit_override_check
#
# Description:
#   This control checks whether an Amazon EC2 fleet overrides only the launch templates based upon AWS Nitro instance types that support encryption in transit between instances.
#
# Reports on:
#   AWS::EC2::EC2Fleet
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#       Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document does not contain any EC2 fleet resources
#       Then: SKIP
#   Scenario: 2
#       Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains an Amazon EC2 fleet resource
#       And: For every entry in 'LaunchTemplateConfigs', 'Overrides' has not been provided
#       or has been provided as an empty list
#       Then: SKIP
```
# Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 fleet resource
And: For an entry in 'LaunchTemplateConfigs', 'Overrides' has been provided as a non-empty list
And: For the same entry in 'LaunchTemplateConfigs', no entries in 'Overrides' include
   'InstanceType' or 'InstanceRequirements'
Then: SKIP

# Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 fleet resource
And: 'Overrides' in 'LaunchTemplateConfigs' has been provided as a non-empty list
And: For an entry in 'Overrides', 'InstanceType' has been provided and set to an instance type
   other than a Nitro instance type that supports encryption in-transit between instances
Then: FAIL

# Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 fleet resource
And: 'Overrides' in 'LaunchTemplateConfigs' has been provided as a non-empty list
And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has not been provided or has been
   provided as an empty list
Then: FAIL

# Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 fleet resource
And: 'Overrides' in 'LaunchTemplateConfigs' has been provided as a non-empty list
And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has been provided as a non-empty list
And: An entry in 'AllowedInstanceTypes' is set to an instance type other than a Nitro instance
type that supports encryption in-transit between instances
# Then: FAIL
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon EC2 fleet resource
# And: 'Overrides' in 'LaunchTemplateConfigs' has been provided as a non-empty
list
# And: For an entry in 'Overrides', 'InstanceType' has been provided and set to a
Nitro instance type that
# supports encryption in-transit between instances
# Then: PASS
# Scenario: 8
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon EC2 fleet resource
# And: 'Overrides' in 'LaunchTemplateConfigs' has been provided as a non-empty
list
# And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
# And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has been
provided as a non-empty list
# And: Every entry in 'AllowedInstanceTypes' is set to a Nitro instance type that
supports encryption in-transit between instances
# Then: PASS

# Constants

let INPUT_DOCUMENT = this
let EC2_FLEET_TYPE = "AWS::EC2::EC2Fleet"
let NITRO_ENCRYPTION_IN_TRANSIT_INSTANCE_TYPES = [
  /^c5a\./, /^c5ad\./, /^c5n\./, /^c6a\./, /^c6g\./, /^c6id\./, /^c6in
\./, /^c7g\./, /^c7gd\./, /^c7gn\./, /^c7i\./, 
  /^d3\./, /^d3en\./, /^d11\./, 
  /^g4ad\./, /^g4dn\./, /^g5\./, 
  /^hp6a\./, /^hp6id\./, /^hp7\./, 
  /^i3en\./, /^i4g\./, /^i4i\./, /^im4gn\./, /^inf1\./, /^inf2\./, /^is4gen\./,
  /^m5dn\./, /*m5n\./, /*m5zn\./, /*m6a\./, /*m6i\./, /*m6id\./, /*m6idn\./, /*m6in
\./, /*m7a\./, /*m7g\./, /*m7gd\./, /*m7i\./, /*m7i-flex\./, 
  /*p3dn\./, /*p4d\./, /*p4de\./, /*p5\./, 
  /*r5dn\./, /*r5n\./, /*r6a\./, /*r6i\./, /*r6id\./, /*r6idn\./, /*r6in\./, /*r7a
\./, /*r7gd\./, /*r7iz\./, 
  /*tn1\./, /*tn1n\./, 
  /*u-12tb1\./, /*u-18tb1\./, /*u-24tb1\./, /*u-3tb1\./, /*u-6tb1\./, /*u-9tb1\./, 
  /*v1\./,
/

# Assignments

let ec2_fleets = Resources.*[ Type == %EC2_FLEET_TYPE ]

# Primary Rules

rule ec2_fleet_nitro_encryption_in_transit_override_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %ec2_fleets not empty {
    check(%ec2_fleets.Properties)
    <<
    [CT.EC2.PR.20]: Require an Amazon Amazon EC2 fleet to override only those
    launch templates with AWS Nitro instance types that support encryption in transit
    between instances
    [FIX]: For any entry in the LaunchTemplateConfigs parameter, if it has one or
    more Overrides properties that also include 'InstanceType' or 'InstanceRequirements'
    fields, set the value of the InstanceType field to an EC2 instance type that's based
    on the AWS Nitro system, and that supports encryption in transit between instances, or
    set the value of the AllowedInstanceTypes field in the InstanceRequirements property
    to one or more EC2 instance types that are based on the AWS Nitro system, and that
    support encryption in transit between instances.
    >>
  }

rule ec2_fleet_nitro_encryption_in_transit_override_check when
  is_cfn_hook(%INPUT_DOCUMENT, %EC2_FLEET_TYPE) {
    check(%INPUT_DOCUMENT.%EC2_FLEET_TYPE.resourceProperties)
    <<
    [CT.EC2.PR.20]: Require an Amazon EC2 fleet to override only those launch
    templates with AWS Nitro instance types that support encryption in transit between
    instances
    [FIX]: For any entry in the LaunchTemplateConfigs parameter, if it has one or
    more Overrides properties that also include 'InstanceType' or 'InstanceRequirements'
    fields,
    set the value of the InstanceType field to an Amazon EC2 instance type that's
    based on the AWS Nitro system, and that supports encryption in transit between
    instances, or
set the value of the AllowedInstanceTypes field in the InstanceRequirements property to one or more Amazon EC2 instance types that are based on the AWS Nitro system, and that support encryption in transit between instances.

```perl
# Parameterized Rules
#
rule check(ec2_fleet) {
  %ec2_fleet [ 
    # Scenarios 2 and 3
    filter_launch_template_overrides(this) 
  ] {
    LaunchTemplateConfigs[*] {
      Overrides[ InstanceType exists ] { 
        # Scenarios 4 and 7
        InstanceType in %NITRO_ENCRYPTION_IN_TRANSIT_INSTANCE_TYPES 
      }
      Overrides[ InstanceRequirements exists ] { 
        InstanceRequirements { 
          # Scenarios 5, 6 and 8
          AllowedInstanceTypes exists
          AllowedInstanceTypes is_list
          AllowedInstanceTypes not empty
          AllowedInstanceTypes[*] in %NITRO_ENCRYPTION_IN_TRANSIT_INSTANCE_TYPES 
        }
      }
    }
  }
}
rule filter_launch_template_overrides(ec2_fleet) {
  %ec2_fleet {
    LaunchTemplateConfigs exists
    LaunchTemplateConfigs is_list
    LaunchTemplateConfigs not empty

    some LaunchTemplateConfigs[*] { 
      Overrides exists
      Overrides is_list
      Overrides not empty
  ```
CT.EC2.PR.20 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
- LatestAmiId:
  - Description: Region specific latest AMI ID from the Parameter Store
  - Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
  - Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
- LaunchTemplate:
  - Type: AWS::EC2::LaunchTemplate
  - Properties:
    - LaunchTemplateData:
ImageId:
   Ref: LatestAmiId
EC2Fleet:
   Type: AWS::EC2::EC2Fleet
   Properties:
      TargetCapacitySpecification:
         TotalTargetCapacity: 1
         DefaultTargetCapacityType: on-demand
LaunchTemplateConfigs:
   - LaunchTemplateSpecification:
     LaunchTemplateName:
       Ref: LaunchTemplate
     Version:
       Fn::GetAtt: [LaunchTemplate, LatestVersionNumber]
     Overrides:
       - InstanceType: c5a.large

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
   LatestAmiId:
      Description: Region specific latest AMI ID from the Parameter Store
      Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
      Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2
Resources:
   LaunchTemplate:
      Type: AWS::EC2::LaunchTemplate
      Properties:
         LaunchTemplateData:
            ImageId:
              Ref: LatestAmiId
   EC2Fleet:
      Type: AWS::EC2::EC2Fleet
      Properties:
         TargetCapacitySpecification:
            TotalTargetCapacity: 1
            DefaultTargetCapacityType: on-demand
LaunchTemplateConfigs:
   - LaunchTemplateSpecification:
     LaunchTemplateName:
       Ref: LaunchTemplate

Proactive controls
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      ImageId:
        Ref: LatestAmiId

EC2Fleet:
  Type: AWS::EC2::EC2Fleet
  Properties:
    TargetCapacitySpecification:
      TotalTargetCapacity: 1
      DefaultTargetCapacityType: on-demand
    LaunchTemplateConfigs:
      - LaunchTemplateSpecification:
        LaunchTemplateId:
          Ref: LaunchTemplate
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
- LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
- LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      ImageId:
        Ref: LatestAmiId

- EC2Fleet:
  Type: AWS::EC2::EC2Fleet
  Properties:
    TargetCapacitySpecification:
      TotalTargetCapacity: 1
      DefaultTargetCapacityType: on-demand

LaunchTemplateConfigs:
- LaunchTemplateSpecification:
  LaunchTemplateName:
    Ref: LaunchTemplate
  Version:
    Fn::GetAtt: [LaunchTemplate, LatestVersionNumber]

Overrides:
- InstanceRequirements:
  VCpuCount:
    Min: 0
    Max: 4
  MemoryMiB:
    Min: 0
    Max: 4000
AllowedInstanceTypes:
- c4.large

Amazon Elastic Compute Cloud (Amazon EC2) Auto Scaling controls

Topics

- [CT.AUTOSCALING.PR.1] Require an Amazon EC2 Auto Scaling group to have multiple Availability Zones
- [CT.AUTOSCALING.PR.2] Require an Amazon EC2 Auto Scaling group launch configuration to configure Amazon EC2 instances for IMDSv2
- [CT.AUTOSCALING.PR.3] Require an Amazon EC2 Auto Scaling launch configuration to have a single-hop metadata response limit
- [CT.AUTOSCALING.PR.4] Require an Amazon EC2 Auto Scaling group associated with an AWS Elastic Load Balancing (ELB) to have ELB health checks activated
- [CT.AUTOSCALING.PR.5] Require than an Amazon EC2 Auto Scaling group launch configuration does not have Amazon EC2 instances with public IP addresses
- [CT.AUTOSCALING.PR.6] Require any Amazon EC2 Auto Scaling groups to use multiple instance types
- [CT.AUTOSCALING.PR.8] Require an Amazon EC2 Auto Scaling group to have EC2 launch templates configured
- [CT.AUTOSCALING.PR.9] Require an Amazon EBS volume configured through an Amazon EC2 Auto Scaling launch configuration to encrypt data at rest
- [CT.AUTOSCALING.PR.10] Require an Amazon EC2 Auto Scaling group to use only AWS Nitro instance types when overriding a launch template
- [CT.AUTOSCALING.PR.11] Require only AWS Nitro instance types that support network traffic encryption between instances to be added to an Amazon EC2 Auto Scaling group, when overriding a launch template

[CT.AUTOSCALING.PR.1] Require an Amazon EC2 Auto Scaling group to have multiple Availability Zones

This control checks whether your Amazon EC2 Auto Scaling group spans multiple Availability Zones.
• **Control objective:** Improve availability

• **Implementation:** AWS CloudFormation Guard Rule

• **Control behavior:** Proactive

• **Resource types:** AWS::AutoScaling::AutoScalingGroup

• **AWS CloudFormation guard rule:** [CT.AUTOSCALING.PR.1 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.AUTOSCALING.PR.1 rule specification](#)

• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.AUTOSCALING.PR.1 example templates](#)

**Explanation**

Amazon EC2 Auto Scaling groups can be configured to use multiple Availability Zones. An Auto Scaling group with a single Availability Zone is preferred in some use cases, such as batch-jobs or when inter-AZ transfer costs need to be kept to a minimum. However, an Auto Scaling group that does not span multiple Availability Zones will not launch instances in another Availability Zone to compensate if the configured single Availability Zone becomes unavailable.

**Remediation for rule failure**

Configure Auto Scaling groups with multiple Availability Zones.

The examples that follow show how to implement this remediation.

**Auto Scaling group - Example**

Auto Scaling group configured with multiple Availability Zones. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "AutoScalingGroup": {
        "Type": "AWS::AutoScaling::AutoScalingGroup",
        "Properties": {
```

"LaunchTemplate": {
    "LaunchTemplateId": {
        "Ref": "LaunchTemplate"
    },
    "Version": {
        "Fn::GetAtt": "LaunchTemplate.LatestVersionNumber"
    },
    "MaxSize": "1",
    "MinSize": "0",
    "DesiredCapacity": "1",
    "AvailabilityZones": [
        {
            "Fn::Select": [
                0,
                {
                    "Fn::GetAZs": ""
                }
            ]
        },
        {
            "Fn::Select": [
                1,
                {
                    "Fn::GetAZs": ""
                }
            ]
        }
    ]
}

**YAML example**

AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    LaunchTemplate:
      LaunchTemplateId: !Ref 'LaunchTemplate'
      Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
MaxSize: '1'
MinSize: '0'
DesiredCapacity: '1'
AvailabilityZones:
  - !Select
    - 0
    - !GetAZs ''
  - !Select
    - 1
    - !GetAZs ''

CT.AUTOSCALING.PR.1 rule specification

# Rule Specification

Rule Identifier:
  autoscaling_multiple_az_check

Description:
  Checks if Auto Scaling groups span multiple Availability Zones.

Reports on:
  AWS::AutoScaling::AutoScalingGroup

Evaluates:
  AWS CloudFormation, AWS CloudFormation hook

Rule Parameters:
  None

Scenarios:
  Scenario: 1
    Given: The input document is an AWS CloudFormation or CloudFormation hook document
    And: The input document does not contain any Auto Scaling groups
    Then: SKIP
  Scenario: 2
    Given: The input document is an AWS CloudFormation or CloudFormation hook document
    And: The input document contains an Auto Scaling group resource
And: 'AvailabilityZones' is not present on the Auto Scaling group resource
Then: FAIL

Scenario: 3
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains an Auto Scaling group resource
And: 'AvailabilityZones' is present on the Auto Scaling group resource
And: The number of 'AvailabilityZones' present is less than 2 (< 2) or the number of unique 'AvailabilityZones' provided is less than 2 (< 2)
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or CloudFormation Hook Document
And: The input document contains an Auto Scaling group resource
And: 'AvailabilityZones' is present on the Auto Scaling group resource
And: The number of 'AvailabilityZones' present is greater than or equal to 2 (>= 2)
And: At least two unique 'AvailabilityZones' have been provided
Then: PASS

CT.AUTOSCALING.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
   LatestAmiId:
       Description: Region specific latest AMI ID from the Parameter Store
       Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
       Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
   LaunchTemplate:
       Type: AWS::EC2::LaunchTemplate
       Properties:
           LaunchTemplateData:
               ImageId:
                   Ref: LatestAmiId
               InstanceType: t3.micro
   AutoScalingGroup:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
- LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
- LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      ImageId:
        Ref: LatestAmiId
      InstanceType: t3.micro
- AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    LaunchTemplate:
      LaunchTemplateId:
        Ref: LaunchTemplate
[CT.AUTOSCALING.PR.2] Require an Amazon EC2 Auto Scaling group launch configuration to configure Amazon EC2 instances for IMDSv2

This control checks whether an Amazon EC2 Auto Scaling launch configuration is configured to require the use of Instance Metadata Service Version 2 (IMDSv2).

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AutoScaling::LaunchConfiguration
- **AWS CloudFormation guard rule:** [CT.AUTOSCALING.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.AUTOSCALING.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFront Templates related to this control, see: [CT.AUTOSCALING.PR.2 example templates](#)

**Explanation**

IMDS provides data about your instance, which you can use to configure or manage the running instance.

Version 2 of the IMDS adds protections that weren't available in IMDSv1, to safeguard your EC2 instances further.
**Usage considerations**

- This control applies only to Amazon EC2 Auto Scaling launch configurations that allow access to instance metadata.

**Remediation for rule failure**

Provide a `MetadataOptions` configuration and set the value of `HttpTokens` to `required`.

The examples that follow show how to implement this remediation.

**Amazon EC2 Auto Scaling Launch Configuration - Example**

Amazon EC2 Auto Scaling launch configuration with IMDSv2 enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "AutoScalingLaunchConfiguration": {
      "Type": "AWS::AutoScaling::LaunchConfiguration",
      "Properties": {
         "ImageId": {
            "Ref": "LatestAmiId"
         },
         "InstanceType": "t3.micro",
         "MetadataOptions": {
            "HttpTokens": "required"
         }
      }
   }
}
```

**YAML example**

```
AutoScalingLaunchConfiguration:
   Type: AWS::AutoScaling::LaunchConfiguration
   Properties:
      ImageId: !Ref LatestAmiId
      InstanceType: t3.micro
      MetadataOptions:
         HttpTokens: required
```
Properties:
  ImageId: !Ref 'LatestAmiId'
  InstanceType: t3.micro
  MetadataOptions:
    HttpTokens: required

CT.AUTOSCALING.PR.2 rule specification

# #####################################################################
##       Rule Specification        ##
# #####################################################################

# Rule Identifier:
#  autoscaling_launch_config_requires_imdsv2_check
#
# Description:
#  This control checks whether an Amazon EC2 Auto Scaling launch configuration is
#  configured to require the use of Instance Metadata Service Version 2 (IMDSv2).
#
# Reports on:
#  AWS::AutoScaling::LaunchConfiguration
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#  None
#
# Scenarios:
#  Scenario: 1
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#    And: The input document does not contain any Autoscaling launch configuration
#      resources
#    Then: SKIP
#  Scenario: 2
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#    And: The input document contains an Autoscaling launch configuration resource
#    And: 'MetadataOptions' has been provided.
And: 'MetadataOptions.HttpEndpoint' has been provided is equal to 'disabled'
Then: SKIP

Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Autoscaling launch configuration resource
And: 'MetadataOptions.HttpEndpoint' has not been provided or has been provided and is equal to 'enabled'
And: 'MetadataOptions.HttpTokens' has not been provided
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Autoscaling launch configuration resource
And: 'MetadataOptions' has been provided.
And: 'MetadataOptions.HttpEndpoint' has not been provided or has been provided and is equal to 'enabled'
And: 'MetadataOptions.HttpTokens' has been provided and set to a value other than 'required'
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Autoscaling launch configuration resource
And: 'MetadataOptions' has been provided.
And: 'MetadataOptions.HttpEndpoint' has not been provided or has been provided and is equal to 'enabled'
And: 'MetadataOptions.HttpTokens' has been provided and set to 'required'
Then: PASS

# Constants

let AUTOSCALING_LAUNCH_CONFIGURATION_TYPE = "AWS::AutoScaling::LaunchConfiguration"
let INPUT_DOCUMENT = this

# Assignments

let autoscaling_launch_configurations = Resources.*[ Type == %AUTOSCALING_LAUNCH_CONFIGURATION_TYPE ]

# Primary Rules
# AWS Control Tower

## User Guide

---

### rule autoscaling_launch_configRequiresImdsv2_check when is_cfn_template(%INPUT_DOCUMENT)

%autoscaling_launch_configurations not empty {
  check(%autoscaling_launch_configurations.Properties)
  
  [CT.AUTOSCALING.PR.2]: Require an Amazon EC2 Auto Scaling group launch configuration to configure Amazon EC2 instances for IMDSv2
  
  [FIX]: Provide a 'MetadataOptions' configuration and set the value of 'HttpTokens' to 'required'.
  
  >>
}

### rule autoscaling_launch_configRequiresImdsv2_check when is_cfn_hook(%INPUT_DOCUMENT, %AUTOSCALING_LAUNCH_CONFIGURATION_TYPE)

check(%INPUT_DOCUMENT.%AUTOSCALING_LAUNCH_CONFIGURATION_TYPE.resourceProperties)

  [CT.AUTOSCALING.PR.2]: Require an Amazon EC2 Auto Scaling group launch configuration to configure Amazon EC2 instances for IMDSv2
  
  [FIX]: Provide a 'MetadataOptions' configuration and set the value of 'HttpTokens' to 'required'.
  
  >>
}

### # Parameterized Rules

### rule check(autoscaling_launch_configuration) {

%autoscaling_launch_configuration [  
  # Scenario 2
  filter_autoscaling_launch_configurations(this)
]

  # Scenario 3, 4 and 5
  MetadataOptions exists
  MetadataOptions is_struct

  MetadataOptions {
    HttpTokens exists
    HttpTokens == "required"
  }
}

---

Proactive controls
rule filter_autoscaling_launch_configurations(autoscaling_launch_configurations) {
    %autoscaling_launch_configurations {
        MetadataOptions not exists or
        filter_metadata_options(this)
    }
}

rule filter_metadata_options(metadata_options) {
    %metadata_options {
        MetadataOptions is_struct
        MetadataOptions {
            HttpEndpoint not exists or
            HttpEndpoint == "enabled"
        }
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists  or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.AUTOSCALING.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
LatestAmiId:
Description: Region specific latest AMI ID from the Parameter Store
Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
AutoScalingLaunchConfiguration:
  Type: AWS::AutoScaling::LaunchConfiguration
  Properties:
    ImageId:
      Ref: LatestAmiId
    InstanceType: t3.micro
    MetadataOptions:
      HttpTokens: required

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
AutoScalingLaunchConfiguration:
  Type: AWS::AutoScaling::LaunchConfiguration
  Properties:
    ImageId:
      Ref: LatestAmiId
    InstanceType: t3.micro
    MetadataOptions:
      HttpTokens: optional

[CT.AUTOSCALING.PR.3] Require an Amazon EC2 Auto Scaling launch configuration to have a single-hop metadata response limit

This control checks whether an Amazon EC2 Auto Scaling launch configuration has a metadata token hop limit set to 1.

- **Control objective:** Protect configurations
• **Implementation**: AWS CloudFormation Guard Rule

• **Control behavior**: Proactive

• **Resource types**: AWS::AutoScaling::LaunchConfiguration

• **AWS CloudFormation guard rule**: [CT.AUTOSCALING.PR.3 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.AUTOSCALING.PR.3 rule specification](#)

• For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.AUTOSCALING.PR.3 example templates](#)

**Explanation**

The Instance Metadata Service (IMDS) provides metadata information about an EC2 instance, which is useful for application configuration. Restricting the HTTP PUT response for the metadata service to the EC2 instance protects the IMDS from unauthorized use.

The Time To Live (TTL) field in the IP packet is reduced by one on every hop. This reduction can be used to ensure that the packet does not travel outside EC2. IMDSv2 protects EC2 instances that may have been misconfigured as open routers, layer 3 firewalls, VPNs, tunnels, or NAT devices, which prevents unauthorized users from retrieving metadata. With IMDSv2, the PUT response that contains the secret token cannot travel outside the instance, because the default metadata response hop limit is set to 1. However, if this value is greater than 1, the token can leave the EC2 instance.

**Usage considerations**

• This control applies only to Amazon EC2 Auto Scaling launch configurations that allow access to instance metadata.

• This control is incompatible with Amazon EC2 Auto Scaling launch configurations that require a token hop limit of 2.

**Remediation for rule failure**

Provide a MetadataOptions configuration with HttpPutResponseLimit set to 1.
The examples that follow show how to implement this remediation.

**Amazon EC2 Auto Scaling Launch Configuration - Example One**

Amazon EC2 Auto Scaling launch configuration configured with access to instance metadata enabled by means of AWS CloudFormation defaults with a token hop limit of 1. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "AutoScalingLaunchConfiguration": {
        "Type": "AWS::AutoScaling::LaunchConfiguration",
        "Properties": {
            "ImageId": {
                "Ref": "LatestAmiId"
            },
            "InstanceType": "t3.micro",
            "MetadataOptions": {
                "HttpPutResponseHopLimit": 1
            }
        }
    }
}
```

**YAML example**

```
AutoScalingLaunchConfiguration:
  Type: AWS::AutoScaling::LaunchConfiguration
  Properties:
    ImageId: !Ref 'LatestAmiId'
    InstanceType: t3.micro
    MetadataOptions:
      HttpPutResponseHopLimit: 1
```

The examples that follow show how to implement this remediation.
Amazon EC2 Auto Scaling Launch Configuration - Example Two

Amazon EC2 Auto Scaling launch configuration configured with access to instance metadata enabled by means of the MetadataOptions property with a token hop limit of 1. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "AutoScalingLaunchConfiguration": {
        "Type": "AWS::AutoScaling::LaunchConfiguration",
        "Properties": {
            "ImageId": {
                "Ref": "LatestAmiId"
            },
            "InstanceType": "t3.micro",
            "MetadataOptions": {
                "HttpEndpoint": "enabled",
                "HttpPutResponseHopLimit": 1
            }
        }
    }
}
```

**YAML example**

```yaml
AutoScalingLaunchConfiguration:
  Type: AWS::AutoScaling::LaunchConfiguration
  Properties:
    ImageId: !Ref 'LatestAmiId'
    InstanceType: t3.micro
    MetadataOptions:
      HttpEndpoint: enabled
      HttpPutResponseHopLimit: 1
```

**CT.AUTOSCALING.PR.3 rule specification**
# Rule Specification

## Rule Identifier:
`autoscaling_launch_config_hop_limit_check`

## Description:
This control checks whether an Amazon EC2 Auto Scaling launch configuration has a metadata token hop limit set to '1'.

## Reports on:
`AWS::AutoScaling::LaunchConfiguration`

## Evaluates:
AWS CloudFormation, AWS CloudFormation hook

## Rule Parameters:
None

## Scenarios:
### Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any Amazon EC2 Auto Scaling launch configuration resources
Then: SKIP

### Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 Auto Scaling launch configuration resource
And: 'MetadataOptions' has been provided.
And: 'MetadataOptions.HttpEndpoint' has been provided is equal to 'disabled'
Then: SKIP

### Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EC2 Auto Scaling launch configuration resource
And: 'MetadataOptions' has not been provided.
Then: FAIL

### Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 Auto Scaling launch configuration resource
# And: 'MetadataOptions' has been provided.
# And: 'MetadataOptions.HttpEndpoint' has not been provided or has been provided and is equal to 'enabled'
# And: 'MetadataOptions.HttpPutResponseHopLimit' has not been provided.
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 Auto Scaling launch configuration resource
# And: 'MetadataOptions' has been provided.
# And: 'MetadataOptions.HttpEndpoint' has not been provided or has been provided and is equal to 'enabled'
# And: 'MetadataOptions.HttpPutResponseHopLimit' has been provided but is not equal to an integer of '1'.
# Then: FAIL

# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 Auto Scaling launch configuration resource
# And: 'MetadataOptions' has been provided.
# And: 'MetadataOptions.HttpEndpoint' has not been provided or has been provided and is equal to 'enabled'
# And: 'MetadataOptions.HttpPutResponseHopLimit' has been provided and is equal to an integer of '1'.
# Then: PASS

#
#
# Constants
#
let AUTOSCALING_LAUNCH_CONFIG_TYPE = "AWS::AutoScaling::LaunchConfiguration"
let INPUT_DOCUMENT = this

#
# Assignments
#
let autoscaling_launch_configurations = Resources.*[ Type == %AUTOSCALING_LAUNCH_CONFIG_TYPE]
# Primary Rules

rule autoscaling_launch_config_hop_limit_check when is_cfn_template(this)
%autoscaling_launch_configurations
not empty {
  check(%autoscaling_launch_configurations.Properties)
  <<
  [CT.AUTOSCALING.PR.3]: Require an Amazon EC2 Auto Scaling launch configuration to have a single-hop metadata response limit
  [FIX]: Provide a 'MetadataOptions' configuration with 'HttpPutResponseLimit' set to '1'.
  >>
}

rule autoscaling_launch_config_hop_limit_check when is_cfn_hook(%INPUT_DOCUMENT, %AUTOSCALING_LAUNCH_CONFIG_TYPE) {
  check(%INPUT_DOCUMENT.%AUTOSCALING_LAUNCH_CONFIG_TYPE.resourceProperties)
  <<
  [CT.AUTOSCALING.PR.3]: Require an Amazon EC2 Auto Scaling launch configuration to have a single-hop metadata response limit
  [FIX]: Provide a 'MetadataOptions' configuration with 'HttpPutResponseLimit' set to '1'.
  >>
}

# Parameterized Rules

rule check(autoscaling_launch_configurations) {
  %autoscaling_launch_configurations[
    # Scenario 2, 3 and 4
    filter_launch_configuration(this)
  ] {
    # Scenario 5 and 6
    MetadataOptions exists
    MetadataOptions is_struct

    MetadataOptions {
      HttpPutResponseHopLimit exists
      HttpPutResponseHopLimit == 1
    }
  }
}
rule filter_launch_configuration(autoscaling_launch_configurations) {
    %autoscaling_launch_configurations {
        MetadataOptions not exists or
        filter_metadata_options_provided(this)
    }
}

rule filter_metadata_options_provided(options) {
    %options {
        MetadataOptions is_struct
        MetadataOptions {
            HttpEndpoint not exists or
            HttpEndpoint == "enabled"
        }
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.AUTOSCALING.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
[CT.AUTO_SCALING.PR.4] Require an Amazon EC2 Auto Scaling group associated with an AWS Elastic Load Balancing (ELB) to have ELB health checks activated

This control checks whether your Amazon EC2 Auto Scaling groups that are associated with a load balancer are using Elastic Load Balancing health checks.

- **Control objective:** Improve availability
• **Implementation**: AWS CloudFormation Guard Rule

• **Control behavior**: Proactive

• **Resource types**: `AWS::AutoScaling::AutoScalingGroup`

• **AWS CloudFormation guard rule**: [CT.AUTOSCALING.PR.4 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.AUTOSCALING.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [GitHub](#)

**Explanation**

This configuration requirement ensures that the group can determine an instance's health based on additional tests provided by the load balancer. Using Elastic Load Balancing health checks can help support the availability of applications that use EC2 Auto Scaling groups.

**Usage considerations**

- This control only applies to Auto Scaling groups associated with a Classic Load Balancer or Target Group

**Remediation for rule failure**

Configure Amazon EC2 Auto Scaling groups associated with an Elastic Load Balancing to use Elastic Load Balancing health checks.

The examples that follow show how to implement this remediation.

**Auto Scaling group - Example One**

Auto Scaling group with a Classic Load Balancer association and Elastic Load Balancing health checks. The example is shown in JSON and in YAML.

**JSON example**
YAML example

AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    LaunchTemplate:
      LaunchTemplateId: !Ref 'LaunchTemplate'
      Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
    MaxSize: '1'
    MinSize: '0'
    DesiredCapacity: '1'
    LoadBalancerNames:
      - !Ref 'ElasticLoadBalancer'
      - !Ref 'Subnet'
    HealthCheckType: 'ELB'
    VPCZoneIdentifier:
      - !Ref 'Subnet'

Proactive controls
LoadBalancerNames:
    - !Ref 'ElasticLoadBalancer'
HealthCheckType: ELB
VPCZoneIdentifier:
    - !Ref 'Subnet'

The examples that follow show how to implement this remediation.

**Auto Scaling group - Example Two**

Auto Scaling group with a Target Group association and Elastic Load Balancing health checks. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "AutoScalingGroup": {
        "Type": "AWS::AutoScaling::AutoScalingGroup",
        "Properties": {
            "LaunchTemplate": {
                "LaunchTemplateId": {
                    "Ref": "LaunchTemplate"
                },
                "Version": {
                    "Fn::GetAtt": "LaunchTemplate.LatestVersionNumber"
                }
            },
            "MaxSize": "1",
            "MinSize": "0",
            "DesiredCapacity": "1",
            "TargetGroupARNs": [
                {
                    "Ref": "ELBv2TargetGroup"
                }
            ],
            "HealthCheckType": "ELB",
            "VPCZoneIdentifier": [
                {
                    "Ref": "Subnet"
                }
            ]
        }
    }
}
```
YAML example

```yaml
AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    LaunchTemplate:
      LaunchTemplateId: !Ref 'LaunchTemplate'
      Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
    MaxSize: '1'
    MinSize: '0'
    DesiredCapacity: '1'
    TargetGroupARNs:
      - !Ref 'ELBv2TargetGroup'
      HealthCheckType: ELB
      VPCZoneIdentifier:
        - !Ref 'Subnet'
```

CT.AUTOSCALING.PR.4 rule specification

```
# Rule Specification

Rule Identifier:
  autoscaling_group_elb_healthcheck_required_check

Description:
  This control checks whether your Auto Scaling groups that are associated with a load balancer are using Elastic Load Balancing health checks.

Reports on:
  AWS::AutoScaling::AutoScalingGroup
```
Evaluates:
   AWS CloudFormation, AWS CloudFormation hook

Rule Parameters:
   None

Scenarios:
   Scenario: 1
      Given: The input document is an AWS CloudFormation or CloudFormation hook document
      And: The input document does not contain any Auto Scaling group
      Then: SKIP
   Scenario: 2
      Given: The input document is an AWS CloudFormation or CloudFormation hook document
      And: The input document contains an Auto Scaling group resource
      And: 'LoadBalancerNames' or 'TargetGroupARNs' are not present on the Auto Scaling group resource or empty lists
      Then: SKIP
   Scenario: 3
      Given: The input document is an AWS CloudFormation or CloudFormation hook document
      And: The input document contains an Auto Scaling group resource
      And: 'LoadBalancerNames' or 'TargetGroupARNs' are present on the Auto Scaling group with at least
         one configuration
      And: 'HealthCheckType' is not present
      Then: FAIL
   Scenario: 4
      Given: The input document is an AWS CloudFormation or CloudFormation hook document
      And: The input document contains an Auto Scaling group resource
      And: 'LoadBalancerNames' or 'TargetGroupARNs' are present on the Auto Scaling group with at least
         one configuration
      And: 'HealthCheckType' is present and set to a value other than 'ELB' (e.g. 'EC2')
      Then: FAIL
   Scenario: 5
      Given: The input document is an AWS CloudFormation or CloudFormation hook document
      And: The input document contains an Auto Scaling group resource
      And: 'LoadBalancerNames' or 'TargetGroupARNs' are present on the Auto Scaling group with at least
         one configuration
      And: 'HealthCheckType' is present and set to 'ELB'
      Then: PASS
[CT.AUTOSCALING.PR.5] Require than an Amazon EC2 Auto Scaling group launch configuration does not have Amazon EC2 instances with public IP addresses

This control checks whether Amazon EC2 Auto Scaling groups have public IP addresses configured through Launch Configurations.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AutoScaling::LaunchConfiguration
- **AWS CloudFormation guard rule:** [CT.AUTOSCALING.PR.5 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.AUTOSCALING.PR.5 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.AUTOSCALING.PR.5 example templates](#)

**Explanation**

Amazon EC2 instances in an Auto Scaling group launch configuration should not have an associated public IP address, except for in limited edge cases. Amazon EC2 instances should only be accessible from behind a load balancer instead of being directly exposed to the internet.

**Remediation for rule failure**

Set `AssociatePublicIpAddress` to false on Auto Scaling Launch Configurations.

The examples that follow show how to implement this remediation.

**Auto Scaling Launch Configuration - Example**

Auto Scaling Launch Configuration configured to disable public IP address association. The example is shown in JSON and in YAML.

**JSON example**
```json
{
    "AutoScalingLaunchConfiguration": {
        "Type": "AWS::AutoScaling::LaunchConfiguration",
        "Properties": {
            "ImageId": {
                "Ref": "LatestAmiId"
            },
            "InstanceType": "t3.micro",
            "AssociatePublicIpAddress": false
        }
    }
}
```

**YAML example**

```yaml
AutoScalingLaunchConfiguration:
  Type: AWS::AutoScaling::LaunchConfiguration
  Properties:
    ImageId: !Ref 'LatestAmiId'
    InstanceType: t3.micro
    AssociatePublicIpAddress: false
```

**CT.AUTOSCALING.PR.5 rule specification**

```markdown
# ###########################################################################
## Rule Specification       ##
###########################################################################
#
# Rule Identifier:
# autoscaling_launch_config_public_ip_disabled_check
#
# Description:
# Checks if Auto Scaling Launch Configurations have been configured to disable public
# IP address association.
#
# Reports on:
```
# AWS::Auto Scaling::LaunchConfiguration
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation Hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document does not contain any Auto Scaling Launch Configuration
# Resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an Auto Scaling Launch Configuration Resource
# And: 'AssociatePublicIpAddress' is not present on the Auto Scaling Launch
# Configuration Resource
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an Auto Scaling Launch Configuration Resource
# And: 'AssociatePublicIpAddress' is present on the Auto Scaling Launch
# Configuration Resource
# and is set to bool(true)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an Auto Scaling Launch Configuration Resource
# And: 'AssociatePublicIpAddress' is present on the Auto Scaling Launch
# Configuration Resource
# and is set to bool(false)
# Then: PASS
#
# Constants
#
let AUTOSCALING_LAUNCH_CONFIGURATION_TYPE = 'AWS::AutoScaling::LaunchConfiguration'
let INPUT_DOCUMENT = this

Proactive controls

1014
# Assignments

let autoscaling_launch_configurations = Resources.*[ Type == %AUTOSCALING_LAUNCH_CONFIGURATION_TYPE ]

# Primary Rules

rule autoscaling_launch_config_public_ip_disabled_check when is_cfn_template(%INPUT_DOCUMENT)
  %autoscaling_launch_configurations not empty {
    check(%autoscaling_launch_configurations.Properties)
    <<
    [CT.AUTOSCALING.PR.5]: Require than an Amazon EC2 Auto Scaling group launch configuration does not have EC2 instances with public IP addresses
    [FIX]: Set 'AssociatePublicIpAddress' to false on Auto Scaling Launch Configurations.
    >>
  }

rule autoscaling_launch_config_public_ip_disabled_check when is_cfn_hook(%INPUT_DOCUMENT, %AUTOSCALING_LAUNCH_CONFIGURATION_TYPE) {
  check(%INPUT_DOCUMENT.%AUTOSCALING_LAUNCH_CONFIGURATION_TYPE.resourceProperties)
  <<
  [CT.AUTOSCALING.PR.5]: Require than an Amazon EC2 Auto Scaling group launch configuration does not have EC2 instances with public IP addresses
  [FIX]: Set 'AssociatePublicIpAddress' to false on Auto Scaling Launch Configurations.
  >>
}

# Parameterized Rules

rule check(launch_configuration) {
  %launch_configuration {
    # Scenario 2
    AssociatePublicIpAddress exists
  }

Proactive controls
# Scenarios 3 and 4

AssociatePublicIpAddress == false


# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.AUTOSCALING.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:

- **LatestAmiId:**
  - Description: Region specific latest AMI ID from the Parameter Store
  - Type: AWS::SSM::Parameter::ValueAWS::EC2::Image::Id
  - Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:

- **AutoScalingLaunchConfiguration:**
  - Type: AWS::AutoScaling::LaunchConfiguration
  - Properties:
    - ImageId:
      - Ref: LatestAmiId
    - InstanceType: t3.micro
    - AssociatePublicIpAddress: false
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
- LatestAmiId:
  - Description: Region specific latest AMI ID from the Parameter Store
  - Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
  - Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
- AutoScalingLaunchConfiguration:
  - Type: AWS::AutoScaling::LaunchConfiguration
    - Properties:
      - ImageId:
        - Ref: LatestAmiId
      - InstanceType: t3.micro
      - AssociatePublicIpAddress: true

[CT.AUTOSCALING.PR.6] Require any Amazon EC2 Auto Scaling groups to use multiple instance types

This control checks whether an Amazon EC2 Auto Scaling group uses multiple instance types through a mixed instance policy and explicit instance type overrides.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AutoScaling::AutoScalingGroup
- **AWS CloudFormation guard rule:** [CT.AUTOSCALING.PR.6 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.AUTOSCALING.PR.6 rule specification](#)
For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.AUTOSCALING.PR.6 example templates](#)

**Explanation**

You can enhance availability by deploying your application across multiple instance types running in multiple Availability Zones. AWS Control Tower recommends using multiple instance types so that the Auto Scaling group can launch another instance type if there is insufficient instance capacity in your chosen Availability Zones.

**Usage considerations**

- This control applies only to Amazon EC2 Auto Scaling groups that do not use attribute-based instance type selection within a mixed instances policy (configured by means of the InstanceRequirements property within mixed instances policy Overrides).

**Remediation for rule failure**

Within a MixedInstancePolicy configuration, provide a LaunchTemplate configuration with two entries in the Overrides property. Within each override, set the InstanceType property to a different Amazon EC2 instance type.

The examples that follow show how to implement this remediation.

**Amazon EC2 Auto Scaling Group - Example**

Amazon EC2 Auto Scaling group configured with multiple instance types. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "AutoScalingGroup": {
        "Type": "AWS::AutoScaling::AutoScalingGroup",
        "Properties": {
            "VPCZoneIdentifier": [
                {
                    "Ref": "Subnet"
                }
            ]
        }
    }
}
```
YAML example

AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    VPCZoneIdentifier:
      - !Ref 'Subnet'
    MaxSize: '2'
    MinSize: '1'
    MixedInstancesPolicy:
LaunchTemplate:
  LaunchTemplateSpecification:
    LaunchTemplateId: !Ref 'EC2LaunchTemplate'
    Version: !GetAtt 'EC2LaunchTemplate.LatestVersionNumber'
    Overrides:
      - InstanceType: t3.micro
      - InstanceType: m5.large

CT.AUTOSCALING.PR.6 rule specification

# ##############################################################################################################
##       Rule Specification       ##
# ##############################################################################################################
#
# Rule Identifier:
#   autoscaling_mixed_instances_policy_multiple_instance_types_check
#
# Description:
#   This control checks whether an Amazon EC2 Auto Scaling group uses multiple instance types through a mixed instance policy and explicit instance type overrides.
#
# Reports on:
#   AWS::AutoScaling::AutoscalingGroup
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Autoscaling Group resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains Autoscaling Group resources

Proactive controls 1020
And: 'MixedInstancesPolicy.LaunchTemplate.Overrides' has been provided as a list
And: There exists any 'Overrides' entry where 'InstanceRequirements' is present
And: There exists no 'Overrides' entry where 'InstanceType' is present
Then: SKIP
Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains Autoscaling Group resources
And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has been provided
And: 'MixedInstancesPolicy.LaunchTemplate.Overrides' has not been provided
Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains Autoscaling Group resources
And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has been provided
And: 'MixedInstancesPolicy.LaunchTemplate.Overrides' has been provided as a list
And: 'InstanceType' is not present or is present as a empty string in 'MixedInstancesPolicy.LaunchTemplate.Overrides'
Then: FAIL
Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains Autoscaling Group resources
And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has been provided
And: 'MixedInstancesPolicy.LaunchTemplate.Overrides' has been provided as a list
And: There exists any 'Overrides' entry where 'InstanceRequirements' is present
And: There exists any 'Overrides' entry where 'InstanceType' is present
Then: FAIL
Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains Autoscaling Group resources
And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has been provided
And: 'MixedInstancesPolicy.LaunchTemplate.Overrides' has been provided as a list
# And: 'InstanceType' is present in 'MixedInstancesPolicy.LaunchTemplate.Overrides' as a non empty string  
# And: Length of 'MixedInstancesPolicy.LaunchTemplate.Overrides' is less than or equal to 1  
# Then: FAIL  
# Scenario: 7  
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document  
# And: The input document contains Autoscaling Group resources  
# And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has been provided  
# And: 'MixedInstancesPolicy.LaunchTemplate.Overrides' has been provided as a list  
# And: 'InstanceType' is present in 'MixedInstancesPolicy.LaunchTemplate.Overrides' as a non empty string  
# And: Length of 'MixedInstancesPolicy.LaunchTemplate.Overrides' is greater than 1  
# Then: PASS

# # Constants  
# let AUTOSCALING_GROUP_TYPE = "AWS::AutoScaling::AutoScalingGroup"  
let INPUT_DOCUMENT = this

# # Assignments  
# let autoscaling_groups = Resources.*[ Type == %AUTOSCALING_GROUP_TYPE ]

# # Primary Rules  
# rule autoscaling_mixed_instances_policy_multiple_instance_types_check when  
# is_cfn_template(%INPUT_DOCUMENT)

%autoscaling_groups not empty {  
  check(%autoscaling_groups.Properties)
  <<
  [CT.AUTOSCALING.PR.6]: Require any Amazon EC2 Auto Scaling groups to use multiple instance types  
  [FIX]: Within a 'MixedInstancePolicy' configuration, provide a 'LaunchTemplate' configuration with two entries in the 'Overrides' property. Within
each override, set the 'InstanceType' property to a different Amazon EC2 instance
type.
>
}

rule autoscaling_mixed_instances_policy_multiple_instance_types_check when
is_cfn_hook(%INPUT_DOCUMENT, %AUTOSCALING_GROUP_TYPE) {
    check(%INPUT_DOCUMENT.%AUTOSCALING_GROUP_TYPE.resourceProperties)
    <<
    [CT.AUTOSCALING.PR.6]: Require any Amazon EC2 Auto Scaling groups to use
    multiple instance types
    [FIX]: Within a 'MixedInstancePolicy' configuration, provide a
    'LaunchTemplate' configuration with two entries in the 'Overrides' property. Within
each override, set the 'InstanceType' property to a different Amazon EC2 instance
type.
    >>
}

# Parameterized Rules
#
rule check(autoscaling_group) {
    %autoscaling_group [  
        # Scenario 2  
        filter_asg_no_instance_requirement_overrides(this)  
    ] {
        # Scenario 4, 5, 6
        MixedInstancesPolicy exists
        MixedInstancesPolicy is_struct

        MixedInstancesPolicy {
            LaunchTemplate exists
            LaunchTemplate is_struct

            LaunchTemplate {
                LaunchTemplateSpecification exists
                LaunchTemplateSpecification is_struct

                Overrides exists
                Overrides is_list
                Overrides not empty

                Overrides[0] exists
                Overrides[1] exists
        }  
    }  
}
Overrides[*] {
    InstanceType exists
    check_is_string_and_not_empty(InstanceType)
}

Overrides[0].InstanceType not in Overrides[1].InstanceType
}

%autoscaling_group [
    # Scenario 2
    filter_asg_conflicting_overrides(this)
] {
    MixedInstancesPolicy {
        LaunchTemplate {
            Overrides[*] {
                check_mutually_exclusive_property_combination(InstanceType,
                InstanceRequirements) or
                check_mutually_exclusive_property_combination(InstanceRequirements,
                InstanceType)
            }
        }
    }
}

rule filter_asg_no_instance_requirement_overrides(autoscaling_group) {
    %autoscaling_group {
        MixedInstancesPolicy not exists or
        filter_mixed_instances_policy_no_instance_requirement_overrides(this)
    }
}

rule filter_mixed_instances_policy_no_instance_requirement_overrides(autoscaling_group) {
    %autoscaling_group {
        MixedInstancesPolicy is_struct
        MixedInstancesPolicy {
            LaunchTemplate not exists or
            filter_launch_templates_no_instance_requirement_overrides(this)
        }
    }
}
rule filter_launch_templates_no_instance_requirement_overrides(launch_template) {
  %launch_template {
    LaunchTemplate is_struct
    LaunchTemplate {
      Overrides not exists or
      filter_overrides_no_instance_requirement_overrides(this)
    }
  }
}

rule filter_overrides_no_instance_requirement_overrides(overrides) {
  %overrides {
    Overrides is_list
    Overrides empty or
    Overrides[*] {
      InstanceRequirements not exists
    }
  }
}

rule filter_asg_conflicting_overrides(autoscaling_group) {
  %autoscaling_group {
    MixedInstancesPolicy not exists or
    filter_mixed_instances_policy_conflicting_overrides(this)
  }
}

rule filter_mixed_instances_policy_conflicting_overrides(autoscaling_group) {
  %autoscaling_group {
    MixedInstancesPolicy is_struct
    MixedInstancesPolicy {
      LaunchTemplate not exists or
      filter_launch_templates_conflicting_overrides(this)
    }
  }
}

rule filter_launch_templates_conflicting_overrides(launch_template) {
  %launch_template {
    LaunchTemplate is_struct
    LaunchTemplate {
      Overrides not exists or

filter_overrides_conflicting_overrides(this)

rule filter_overrides_conflicting_overrides(overrides) {
  %overrides {
    Overrides is_list
    Overrides empty or
    some Overrides[*] {
      InstanceRequirements exists
      InstanceType exists
    }
  }
}

rule check_mutually_exclusive_property_combination(property1, property2) {
  %property1 not exists
  %property2 exists
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /\A\s\z/  
  }
}
CT.AUTOSCALING.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:

LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:

EC2LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateName:
      Fn::Sub: ${AWS::StackName}-example
    LaunchTemplateData:
      InstanceType: t3.micro
      ImageId:
        Ref: LatestAmiId

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    VPCZoneIdentifier:
      - Ref: Subnet

Proactive controls
MaxSize: '2'
MinSize: '1'

MixedInstancesPolicy:
  LaunchTemplate:
    LaunchTemplateSpecification:
      LaunchTemplateId:
        Ref: EC2LaunchTemplate
      Version:
        Fn::GetAtt:
          - EC2LaunchTemplate
          - LatestVersionNumber
      Overrides:
        - InstanceType: t3.micro
        - InstanceType: m5.large

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  EC2LaunchTemplate:
    Type: AWS::EC2::LaunchTemplate
    Properties:
      LaunchTemplateName:
        Fn::Sub: ${AWS::StackName}-example
      LaunchTemplateData:
        InstanceType: t3.micro
        ImageId:
          Ref: LatestAmiId

  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'

  Subnet:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.0.0/24
  AvailabilityZone:
    Fn::Select:
      - 0
      - Fn::GetAZs: ''
AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
Properties:
  VPCZoneIdentifier:
    - Ref: Subnet
  MaxSize: '2'
  MinSize: '1'
  MixedInstancesPolicy:
    LaunchTemplate:
      LaunchTemplateSpecification:
        LaunchTemplateId:
          Ref: EC2LaunchTemplate
        Version:
          Fn::GetAtt:
            - EC2LaunchTemplate
            - LatestVersionNumber
      Overrides:
        - InstanceType: t3.micro

[CT.AUTOSCALING.PR.8] Require an Amazon EC2 Auto Scaling group to have EC2 launch templates configured

This control checks whether an Amazon EC2 Auto Scaling group is configured to use an EC2 launch template.

- **Control objective:** Manage vulnerabilities
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AutoScaling::AutoScalingGroup
- **AWS CloudFormation guard rule:** CT.AUTOSCALING.PR.8 rule specification
Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the:  
  [CT.AUTO.scaling.PR.8 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see:  
  [CT.AUTO.scaling.PR.8 example templates](#)

Explanation

An Auto Scaling group can be created from an EC2 launch template or from a launch configuration. If you use a launch template to create an Auto Scaling group, you have access to the latest features and improvements.

Remediation for rule failure

Provide a LaunchTemplate or MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification configuration with a valid Version and a LaunchTemplateId or LaunchTemplateName.

The examples that follow show how to implement this remediation.

Amazon EC2 Auto Scaling Group - Example One

Amazon EC2 Auto Scaling group configured with an EC2 launch template. The example is shown in JSON and in YAML.

JSON example

```json
{
  "AutoScalingGroup": {
    "Type": "AWS::AutoScaling::AutoScalingGroup",
    "Properties": {
      "VPCZoneIdentifier": [
        {
          "Ref": "Subnet"
        }
      ],
      "MaxSize": "2",
      "MinSize": "1",
      "LaunchTemplate": {
        "LaunchTemplateName": "SampleLaunchTemplate",
```

[CT.AUTO.scaling.PR.8 rule specification](#)
The examples that follow show how to implement this remediation.

**Amazon EC2 Auto Scaling Group - Example Two**

Amazon EC2 Auto Scaling group configured with a mixed instances policy and EC2 launch template. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "AutoScalingGroup": {
    "Type": "AWS::AutoScaling::AutoScalingGroup",
    "Properties": {
      "VPCZoneIdentifier": [
        "!Ref 'Subnet'
      ],
      "MaxSize": '2',
      "MinSize": '1',
      "LaunchTemplate": {
        "LaunchTemplateName": "SampleLaunchTemplate",
        "Version": "!GetAtt 'EC2LaunchTemplate.LatestVersionNumber'"
      }
    }
  }
}
```

**YAML example**

```yaml
AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    VPCZoneIdentifier: - !Ref 'Subnet'
    MaxSize: '2'
    MinSize: '1'
    LaunchTemplate:
      LaunchTemplateName: SampleLaunchTemplate
      Version: !GetAtt 'EC2LaunchTemplate.LatestVersionNumber'
```

**Proactive controls**

1031
```yaml
Автоасинковая группа:
  Тип: AWS::AutoScaling::AutoScalingGroup
  Свойства:
    ВПЦЗонаРасположения:
      - !Ref 'Subnet'
    Количество_максимума: '2'
    Количество_минимума: '1'
    Политика_смешиваемых_инстанций:
      запускаемая_темплейт:
        Темплейт_спецификация:
        Темплейт_идентификатор: !Ref 'EC2LaunchTemplate'
        Версия: !GetAtt 'EC2LaunchTemplate.LatestVersionNumber'
```

**YAML example**
# Rule Specification

**Rule Identifier:**
autoscaling_launch_template_check

**Description:**
This control checks whether an Amazon EC2 Auto Scaling group is configured to use an EC2 launch template.

**Reports on:**
AWS::AutoScaling::AutoscalingGroup

**Evaluates:**
AWS CloudFormation, AWS CloudFormation hook

**Rule Parameters:**
None

**Scenarios:**
- **Scenario: 1**
  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
  And: The input document does not contain any Amazon EC2 Auto Scaling group resources
  Then: SKIP

- **Scenario: 2**
  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
  And: The input document contains an Amazon EC2 Auto Scaling group resource
  And: 'LaunchTemplate' has not been provided
  And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has not been provided
  Then: FAIL

- **Scenario: 3**
  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
  And: The input document contains an Amazon EC2 Auto Scaling group resource
  And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has not been provided
# And: 'LaunchTemplate' has been provided
# And: 'LaunchTemplate' has an invalid configuration ('Version' has not been provided and one of 'LaunchTemplateId'
# or 'LaunchTemplateName' has not been provided or 'Version' has been provided as an empty string or invalid local
# reference and one of 'LaunchTemplateId' or 'LaunchTemplateName' has been provided as an empty string or an
# invalid local reference)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 Auto Scaling group resource
# And: 'LaunchTemplate' has not been provided
# And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has been provided
# And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has an invalid configuration ('Version' has not been provided and one of 'LaunchTemplateId' or 'LaunchTemplateName' has not been provided or 'Version' has been provided as an empty string or invalid local reference and one of 'LaunchTemplateId' or 'LaunchTemplateName' has been provided as an empty string or an invalid local reference)
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 Auto Scaling group resource
# And: 'LaunchTemplate' has been provided
# And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has been provided.
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 Auto Scaling group resource
# And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has not been provided
# And: 'LaunchTemplate' has been provided
# And: 'LaunchTemplate' has a valid configuration ('Version' has been provided and one of 'LaunchTemplateId' or
# 'LaunchTemplateName' has been provided as a non-empty string or valid local reference)
# Then: PASS
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon EC2 Auto Scaling group resource
#     And: 'LaunchTemplate' has not been provided
#     And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has been provided
#     And: 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' has a valid configuration ('Version' has
#           been provided and one of 'LaunchTemplateId' or 'LaunchTemplateName' has been provided as a non-empty string
#           or valid local reference)
#     Then: PASS

# Constants
#
let AUTOSCALING_GROUP_TYPE = "AWS::AutoScaling::AutoScalingGroup"
let INPUT_DOCUMENT = this
#
# Assignments
#
let autoscaling_groups = Resources.*[ Type == %AUTOSCALING_GROUP_TYPE ]
#
# Primary Rules
#
rule autoscaling_launch_template_check when is_cfn_template(%INPUT_DOCUMENT)
%autoscaling_groups not empty {
  check(%autoscaling_groups.Properties)
  autoscaling_groups not empty {
    [CT.AUTOSCALING.PR.8]: Require an Amazon EC2 Auto Scaling group to have EC2
    launch templates configured
    [FIX]: Provide a 'LaunchTemplate' or 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' configuration with a
    valid 'Version' and a 'LaunchTemplateId' or 'LaunchTemplateName'.
  } >>
}

rule autoscaling_launch_template_check when is_cfn_hook(%INPUT_DOCUMENT,
%AUTOSCALING_GROUP_TYPE) {
  check(%INPUT_DOCUMENT.%AUTOSCALING_GROUP_TYPE.resourceProperties)
  <<
[CT.AUTOSCALING.PR.8]: Require an Amazon EC2 Auto Scaling group to have EC2 launch templates configured

[FIX]: Provide a 'LaunchTemplate' or 'MixedInstancesPolicy.LaunchTemplate.LaunchTemplateSpecification' configuration with a valid 'Version' and a 'LaunchTemplateId' or 'LaunchTemplateName'.

```较少代码```

# Parameterized Rules

# rule check(autoscaling_groups) {
%autoscaling_groups {
  # Scenario 3 and 6
  check_launch_template(this) or
  # Scenario 4 and 7
  check_mixed_instances_policy(this)
}
}

rule check_launch_template(autoscaling_groups) {
%autoscaling_groups {
  check_mutually_exclusive_property_combination(LaunchTemplate,
  MixedInstancesPolicy)
  LaunchTemplate is_struct
  LaunchTemplate {
    check_valid_launch_template_config(this)
  }
}
}

rule check_mixed_instances_policy(autoscaling_groups) {
%autoscaling_groups {
  check_mutually_exclusive_property_combination(MixedInstancesPolicy,
  LaunchTemplate)
  MixedInstancesPolicy is_struct
  MixedInstancesPolicy {
    LaunchTemplate exists
    LaunchTemplate is_struct
    LaunchTemplate {
      LaunchTemplateSpecification exists
      LaunchTemplateSpecification is_struct
      check_valid_launch_template_config(LaunchTemplateSpecification)
```
rule check_valid_launch_template_config(launch_template_specification) {
    %launch_template_specification {
        check_valid_launch_template_property(Version)
        check_valid_prop_combination(LaunchTemplateId, LaunchTemplateName) or
        check_valid_prop_combination(LaunchTemplateName, LaunchTemplateId)
    }
}

rule check_valid_prop_combination(valid_property, invalid_property) {
    check_mutually_exclusive_property_combination(%valid_property, %invalid_property)
    check_valid_launch_template_property(%valid_property)
}

rule check_mutually_exclusive_property_combination(valid_property, invalid_property) {
    %invalid_property not exists
    %valid_property exists
}

rule check_valid_launch_template_property(property) {
    %property {
        check_is_string_and_not_empty(this) or
        check_local_references(%INPUT_DOCUMENT, this, "AWS::EC2::LaunchTemplate")
    }
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
CT.AUTOSCALING.PR.8 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:

LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  EC2LaunchTemplate:
Type: AWS::EC2::LaunchTemplate
Properties:
  LaunchTemplateName:
    Fn::Sub: ${AWS::StackName}-example
  LaunchTemplateData:
    InstanceType: t3.micro
    ImageId:
      Ref: LatestAmiId
VPC:
  Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsSupport: 'true'
  EnableDnsHostnames: 'true'
Subnet:
  Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.0.0/24
  AvailabilityZone:
    Fn::Select:
      - 0
      - Fn::GetAZs: ''
AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
Properties:
  VPCZoneIdentifier:
    - Ref: Subnet
  MaxSize: '2'
  MinSize: '1'
  LaunchTemplate:
    LaunchTemplateId:
      Ref: EC2LaunchTemplate
    Version:
      Fn::GetAtt:
        - EC2LaunchTemplate
        - LatestVersionNumber

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value<AWS::EC2::Image::Id>
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'

  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
      AvailabilityZone:
        Fn::Select:
        - 0
        - Fn::GetAZs: ''

  AutoScalingLaunchConfiguration:
    Type: AWS::AutoScaling::LaunchConfiguration
    Properties:
      ImageId:
        Ref: LatestAmiId
      InstanceType: t3.micro
      LaunchConfigurationName: "AutoScalingLaunchConfiguration"

  AutoScalingGroup:
    Type: AWS::AutoScaling::AutoScalingGroup
    Properties:
      VPCZoneIdentifier:
        - Ref: Subnet
      MaxSize: '2'
      MinSize: '1'
      LaunchConfigurationName: "AutoScalingLaunchConfiguration"
[CT.AUTOSCALING.PR.9] Require an Amazon EBS volume configured through an Amazon EC2 Auto Scaling launch configuration to encrypt data at rest

This control checks whether Auto Scaling launch configurations with Amazon EBS volume block device mappings enable Amazon EBS volume encryption.

- **Control objective**: Encrypt data at rest
- **Implementation**: AWS CloudFormation guard rule
- **Control behavior**: Proactive
- **Resource types**: AWS::AutoScaling::LaunchConfiguration
- **AWS CloudFormation guard rule**: [CT.AUTOSCALING.PR.9 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.AUTOSCALING.PR.9 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.AUTOSCALING.PR.9 example templates](#)

**Explanation**

Enable Amazon EBS encryption at rest, to provide an added layer of security for your sensitive data in Amazon EBS volumes. Amazon EBS encryption offers a straightforward encryption solution for your Amazon EBS resources. It doesn't require you to build, maintain, and secure your own key management infrastructure. It uses KMS keys when creating encrypted volumes and snapshots.

**Usage considerations**

- This control applies only to Amazon EC2 Auto Scaling launch configurations that specify Amazon EBS block device mappings.

**Remediation for rule failure**

For every entry in the BlockDeviceMappings parameter with an Ebs configuration, set the value of Encryption to true.
The examples that follow show how to implement this remediation.

**Amazon EC2 Auto Scaling Launch Configuration - Example**

An Amazon EC2 Auto Scaling launch configuration configured with an Amazon EBS block device mapping that has volume encryption enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "LaunchConfiguration": {
        "Type": "AWS::AutoScaling::LaunchConfiguration",
        "Properties": {
            "ImageId": {
                "Ref": "LatestAmiId"
            },
            "InstanceType": "t3.micro",
            "BlockDeviceMappings": [
                {
                    "DeviceName": "/dev/sdc",
                    "Ebs": {
                        "Encrypted": true,
                        "VolumeSize": 100,
                        "VolumeType": "gp3"
                    }
                }
            ]
        }
    }
}
```

**YAML example**

```yaml
LaunchConfiguration:
  Type: AWS::AutoScaling::LaunchConfiguration
  Properties:
    ImageId: !Ref 'LatestAmiId'
    InstanceType: t3.micro
    BlockDeviceMappings:
      - DeviceName: /dev/sdc
```

Proactive controls
Ebs:
  Encrypted: true
  VolumeSize: 100
  VolumeType: gp3

CT.AUTOSCALING.PR.9 rule specification

# ###########################################################
##       Rule Specification       ##
#######################################################

# Rule Identifier:
# autoscaling_launch_config_encrypted_volumes_check

# Description:
# This control checks whether Auto Scaling launch configurations with Amazon EBS
# volume block device mappings enable Amazon EBS volume encryption.

# Reports on:
# AWS::AutoScaling::LaunchConfiguration

# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document does not contain any Amazon EC2 Auto Scaling launch
#   configuration resources
#   Then: SKIP
# Scenario: 2
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an Amazon EC2 Auto Scaling launch
#   configuration resource
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 Auto Scaling launch configuration resource
# And: 'BlockDeviceMappings' has been provided as a non-empty list
# And: No entries in 'BlockDeviceMappings' contain 'Ebs' as a struct
# Then: SKIP

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 Auto Scaling launch configuration resource
# And: 'BlockDeviceMappings' has been provided as a non-empty list
# And: An entry in 'BlockDeviceMappings' contains 'Ebs' as a struct
# And: In the same entry, 'Encrypted' in 'Ebs' has not been provided or has been provided and set to a value other than bool(true)
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 Auto Scaling launch configuration resource
# And: 'BlockDeviceMappings' has been provided as a non-empty list
# And: An entry in 'BlockDeviceMappings' contains 'Ebs' as a struct
# And: In the same entry, 'Encrypted' in 'Ebs' has been provided and set to bool(true)
# Then: PASS

# Constants

let INPUT_DOCUMENT = this
let AUTOSCALING_LAUNCH_CONFIGURATION_TYPE = "AWS::AutoScaling::LaunchConfiguration"

# Assignments
#
let autoscaling_launch_configurations = Resources.*[ Type == %AUTOSCALING_LAUNCH_CONFIGURATION_TYPE ]
# Primary Rules

rule autoscaling_launch_config_encrypted_volumes_check when is_cfn_template(this)

%autoscaling_launch_configurations not empty {
  check(%autoscaling_launch_configurations.Properties)
  <<
  [CT.AUTOSCALING.PR.9]: Require an Amazon EBS volume configured through an Amazon EC2 Auto Scaling launch configuration to encrypt data at rest
  [FIX]: For every entry in the BlockDeviceMappings parameter with an 'Ebs' configuration, set the value of 'Encryption' to true.
  >>
}

rule autoscaling_launch_config_encrypted_volumes_check when
is_cfn_hook(%INPUT_DOCUMENT, %AUTOSCALING_LAUNCH_CONTEXT) {
  check(%INPUT_DOCUMENT.%AUTOSCALING_LAUNCH_CONTEXT.resourceProperties)
  <<
  [CT.AUTOSCALING.PR.9]: Require an Amazon EBS volume configured through an Amazon EC2 Auto Scaling launch configuration to encrypt data at rest
  [FIX]: For every entry in the BlockDeviceMappings parameter with an 'Ebs' configuration, set the value of 'Encryption' to true.
  >>
}

# Parameterized Rules

rule check(autoscaling_launch_configuration) {
  %autoscaling_launch_configuration [
    # Scenarios 2 and 3
    filter_launch_configuration_contains_ebs_block_device_mappings(this)
  ] {
    BlockDeviceMappings[
      Ebs exists
      Ebs is_struct
    ] {
      Ebs {
        # Scenarios 4 and 5
        Encrypted exists
        Encrypted == true
      }
    }
  }
}
rule
filter_launch_configuration_contains_ebs_block_device_mappings(launch_configuration) {
  %launch_configuration {
    BlockDeviceMappings exists
    BlockDeviceMappings is_list
    BlockDeviceMappings not empty

    some BlockDeviceMappings[*] {
      Ebs exists
      Ebs is_struct
    }
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.AUTOSCALING.PR.9 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
  LatestAmiId:
Description: Region specific latest AMI ID from the Parameter Store
Type: AWS::SSM::Parameter::Value "AWS::EC2::Image::Id"
Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  LaunchConfiguration:
    Type: AWS::AutoScaling::LaunchConfiguration
    Properties:
      ImageId:
        Ref: LatestAmiId
      InstanceType: t3.micro
      BlockDeviceMappings:
        - DeviceName: /dev/sdc
          Ebs:
            Encrypted: true
            VolumeSize: 100
            VolumeType: gp3

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value "AWS::EC2::Image::Id"
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  LaunchConfiguration:
    Type: AWS::AutoScaling::LaunchConfiguration
    Properties:
      ImageId:
        Ref: LatestAmiId
      InstanceType: t3.micro
      BlockDeviceMappings:
        - DeviceName: /dev/sdc
          Ebs:
            Encrypted: false
            VolumeSize: 100
            VolumeType: gp3
[CT.AUTOSCALING.PR.10] Require an Amazon EC2 Auto Scaling group to use only AWS Nitro instance types when overriding a launch template

This control checks whether, when using a MixedInstancesPolicy resource parameter override, an Amazon EC2 Auto Scaling group overrides launch templates by specifying AWS Nitro instance types only.

- **Control objective:** Protect data integrity, Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AutoScaling::AutoScalingGroup
- **AWS CloudFormation guard rule:** [CT.AUTOSCALING.PR.10 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the:  
  [CT.AUTOSCALING.PR.10 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see:  
  [CT.AUTOSCALING.PR.10 example templates](#)

**Explanation**

The Nitro System is a collection of hardware and software components built by AWS to enable high performance, high availability, and high security. The Nitro System provides enhanced security because it continuously monitors, protects, and verifies the instance's hardware and firmware. Virtualization resources are offloaded to dedicated hardware and software, thereby minimizing the attack surface. The Nitro System security model is locked down to prohibit administrative access, greatly reducing the possibility of human error and tampering.

**Usage considerations**

- This control applies only to Amazon EC2 Auto Scaling groups that are configured with launch template overrides that specify an instance type or instance attributes. A LaunchTemplate.LaunchTemplateSpecification configuration specifies one or more Overrides that also include InstanceType or InstanceRequirements.
• This control does not check the instance type configured on a launch template. To ensure that launch templates use Nitro instances types, use this control in conjunction with related controls that check launch templates for Nitro instance types.

Remediation for rule failure

In the MixedInstancesPolicy.LaunchTemplate property, if it has one or more Overrides fields that include InstanceType or InstanceRequirements, set the value of InstanceType to an Amazon EC2 instance type that is based on the AWS Nitro system, or set the value of AllowedInstanceTypes in InstanceRequirements to one or more Amazon EC2 instance types that are based on the AWS Nitro system.

The examples that follow show how to implement this remediation.

**Amazon EC2 Auto Scaling Group - Example One**

An Amazon EC2 Auto Scaling group configured with a launch template override and instance type based on the AWS Nitro system. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "AutoScalingGroup": {
        "Type": "AWS::AutoScaling::AutoScalingGroup",
        "Properties": {
            "MixedInstancesPolicy": {
                "LaunchTemplate": {
                    "LaunchTemplateSpecification": {
                        "LaunchTemplateId": {
                            "Ref": "LaunchTemplate"
                        },
                        "Version": {
                            "Fn::GetAtt": "LaunchTemplate.LatestVersionNumber"
                        }
                    },
                    "Overrides": [
                        {
                            "InstanceType": "t3.micro"
                        }
                    ]
                }
            }
        }
    }
}
```
YAML example

AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    MixedInstancesPolicy:
      LaunchTemplate:
        LaunchTemplateSpecification:
          LaunchTemplateId: !Ref 'LaunchTemplate'
          Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
        Overrides:
          - InstanceType: t3.micro
    MaxSize: 1
    MinSize: 0
    DesiredCapacity: 1
    VPCZoneIdentifier:
      - !Ref 'Subnet'

The examples that follow show how to implement this remediation.

Amazon EC2 Auto Scaling Group - Example Two

An Amazon EC2 Auto Scaling group configured with a launch template override and instance requirements that specify a list of allowed instances based on the AWS Nitro system. The example is shown in JSON and in YAML.
JSON example

```json
{
    "AutoScalingGroup": {
        "Type": "AWS::AutoScaling::AutoScalingGroup",
        "Properties": {
            "MixedInstancesPolicy": {
                "LaunchTemplate": {
                    "LaunchTemplateSpecification": {
                        "LaunchTemplateId": {
                            "Ref": "LaunchTemplate"
                        },
                        "Version": {
                            "Fn::GetAtt": "LaunchTemplate.LatestVersionNumber"
                        }
                    }
                },
                "Overrides": [
                    {
                        "InstanceRequirements": {
                            "AllowedInstanceTypes": [
                                "m5.*",
                                "c5.*"
                            ],
                            "VCpuCount": {
                                "Min": 2,
                                "Max": 4
                            },
                            "MemoryMiB": {
                                "Min": 4000,
                                "Max": 8000
                            }
                        }
                    }
                ],
                "MaxSize": 1,
                "MinSize": 0,
                "DesiredCapacity": 1,
                "VPCZoneIdentifier": [
                    {
                        "Ref": "Subnet"
                    }
                ]
            }
        }
    }
}
```
YAML example

AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    MixedInstancesPolicy:
      LaunchTemplate:
        LaunchTemplateSpecification:
          LaunchTemplateId: !Ref 'LaunchTemplate'
          Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
        Overrides:
          - InstanceRequirements:
              AllowedInstanceTypes:
                - m5.*
                - c5.*
              VcpuCount:
                Min: 2
                Max: 4
              MemoryMiB:
                Min: 4000
                Max: 8000
          MaxSize: 1
          MinSize: 0
          DesiredCapacity: 1
          VPCZoneIdentifier:
            - !Ref 'Subnet'

CT.AUTOSCALING.PR.10 rule specification

# #############################################################################
##       Rule Specification       ##
# #############################################################################
#
# Rule Identifier:
# autoscaling_group_nitro_instance_override_check
#
# Description:
# This control checks whether, when using a mixed instance policy, an Amazon EC2 Auto
# Scaling group overrides launch templates with AWS Nitro instance types only.
#
# Reports on:
# AWS::AutoScaling::AutoScalingGroup
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation Hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any Amazon EC2 auto scaling group
# resources
# Then: SKIP
#
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon EC2 auto scaling group resource
# And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has not been provided
# or
# has been provided as an empty list
# Then: SKIP
#
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon EC2 auto scaling group resource
# And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as
# a non-empty list
# And: No entries in 'Overrides' include 'InstanceType' or 'InstanceRequirements'
# Then: SKIP
#
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon EC2 auto scaling group resource
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 auto scaling group resource
# And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as a non-empty list
# And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
# And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has not been provided or has been provided as an empty list
# Then: FAIL

# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 auto scaling group resource
# And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as a non-empty list
# And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
# And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has been provided as a non-empty list
# And: An entry in 'AllowedInstanceTypes' is set to an instance type other than a Nitro instance type
# Then: FAIL

# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 auto scaling group resource
# And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as a non-empty list
# And: For an entry in 'Overrides', 'InstanceType' has been provided and set to a Nitro instance type
# Then: PASS

# Scenario: 8
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 auto scaling group resource
# And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as a non-empty list
# And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
# And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has been
# provided as a non-empty list
# And: Every entry in 'AllowedInstanceTypes' is set to a Nitro instance type
# Then: PASS

# Constants

let INPUT_DOCUMENT = this

let AUTOSCALING_GROUP_TYPE = "AWS::AutoScaling::AutoScalingGroup"

let NITRO_INSTANCE_TYPES = [
    /^a1\./,
    /^c5\./, /^c5a\./, /^c5ad\./, /^c5d\./, /^c5n\./, /^c6a\./, /^c6g\./, /^c6gd\./, /^c6gn\./, /^c6i\./, /^c6id\./, /^c6in\./, /^c7g\./, /^c7gd\./, /^c7gn\./, /^c7i\./, /^d3\./, /^d3en\./, /^d11\./,
    /^g4ad\./, /^g4dn\./, /^g5\./, /^g5n\./, /^hpc6a\./, /^hpc6id\./, /^hpc7a\./, /^hpc7g\./, /^i3.metal\./, /^i3en\./, /^i4g\./, /^i4id\./, /^i4i\./, /^im4gn\./, /^inf1\./, /^inf2\./, /^is4gen\./, /^m5\./, /^m5a\./, /^m5ad\./, /^m5d\./, /^m5zn\./, /^m6a\./, /^m6g\./, /^m6gd\./, /^m6i\./, /^m6id\./, /^m6idn\./, /^m6in\./, /^m7a\./, /^m7g\./, /^m7gd\./, /^m7i\./, /^m7i-flex\./, /^mac1.metal\./, /^mac2-m2pro.metal\./, /^mac2.metal\./,
    /^p3dn\./, /^p4d\./, /^p4de\./, /^p5\./, /^p5\./, /^r5\./, /^r5a\./, /^r5ad\./, /^r5b\./, /^r5d\./, /^r5dn\./, /^r5n\./, /^r6a\./, /^r6g\./, /^r6gd\./, /^r6i\./, /^r6id\./, /^r6idn\./, /^r6in\./, /^r7a\./, /^r7g\./, /^r7gd\./, /^r7iz\./,
    /^t3\./, /^t3a\./, /^t4g\./, /^trn1\./, /^trn1n\./,
    /^u-12tb1\./, /^u-12tb1\./, /^u-18tb1\./, /^u-24tb1\./, /^u-3tb1\./, /^u-6tb1\./, /^u-9tb1\./,
    /^vt1\./,
    /^x2gd\./, /^x2idn\./, /^x2iedn\./, /^x2iedn\./, /^x2iezn\./, /^zld\./,
]

# Assignments

let autoscaling_groups = Resources.*[ Type == %AUTOSCALING_GROUP_TYPE ]

# Primary Rules

Proactive controls
rule autoscaling_group_nitro_instance_override_check when
  is_cfn_template(%INPUT_DOCUMENT) %autoscaling_groups not empty
{
  check(%autoscaling_groups.Properties)
  <<
  [CT.AUTOSCALING.PR.10]: Require an Amazon EC2 Auto Scaling group to override
  only those launch templates with AWS Nitro instance types
  [FIX]: In the MixedInstancesPolicy.LaunchTemplate property, if it has one or
  more 'Overrides' fields that include 'InstanceType' or 'InstanceRequirements',
  set the value of 'InstanceType' to an Amazon EC2 instance type that is
  based on the AWS Nitro system, or set the value of 'AllowedInstanceTypes' in
  'InstanceRequirements' to one or more Amazon EC2 instance
  types that are based on the AWS Nitro system.
>>
}

rule autoscaling_group_nitro_instance_override_check when is_cfn_hook(%INPUT_DOCUMENT, %AUTOSCALING_GROUP_TYPE) {
  check(%INPUT_DOCUMENT.%AUTOSCALING_GROUP_TYPE.resourceProperties)
  <<
  [CT.AUTOSCALING.PR.10]: Require an Amazon EC2 Auto Scaling group to override
  only those launch templates with AWS Nitro instance types
  [FIX]: In the MixedInstancesPolicy.LaunchTemplate property, if it has one or
  more 'Overrides' fields that include 'InstanceType' or 'InstanceRequirements',
  set the value of 'InstanceType' to an Amazon EC2 instance type that is
  based on the AWS Nitro system, or set the value of 'AllowedInstanceTypes' in
  'InstanceRequirements' to one or more Amazon EC2
  instance types that are based on the AWS Nitro system.
>>
}

# # Parameterized Rules #

rule check(autoscaling_group) {
  %autoscaling_group [  
    # Scenarios 2 and 3  
    filter_launch_template_overrides(this)  
  ] {  
    MixedInstancesPolicy {  
      LaunchTemplate {  
        Overrides[ InstanceType exists ] {  
          # Scenarios 4 and 7  
        }  
      }  
    }  
  }
}
rule filter_launch_template_overrides(autoscaling_group) {
  %autoscaling_group {
    MixedInstancesPolicy exists
    MixedInstancesPolicy is_struct

    MixedInstancesPolicy {
      LaunchTemplate exists
      LaunchTemplate is_struct

      LaunchTemplate {
        Overrides exists
        Overrides is_list
        Overrides not empty

        some Overrides[*] {
          InstanceType exists or
          InstanceRequirements exists
        }
      }
    }
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {

CT.AUTOSCALING.PR.10 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:

LatestAmiId:
   Description: Region specific latest AMI ID from the Parameter Store
   Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
   Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:

VPC:
   Type: AWS::EC2::VPC
   Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'

Subnet:
   Type: AWS::EC2::Subnet
   Properties:
      VpcId:
         Ref: VPC
      CidrBlock: 10.0.0.0/24

LaunchTemplate:
   Type: AWS::EC2::LaunchTemplate
   Properties:
      LaunchTemplateData:
         ImageId:
            Ref: LatestAmiId
AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
Properties:
  MixedInstancesPolicy:
    LaunchTemplate:
      LaunchTemplateSpecification:
        LaunchTemplateId:
          Ref: LaunchTemplate
        Version:
          Fn::GetAtt: LaunchTemplate.LatestVersionNumber
      Overrides:
        - InstanceType: t3.micro
          MaxSize: 1
          MinSize: 0
          DesiredCapacity: 1
          VPCZoneIdentifier: - Ref: Subnet

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value'AWS::EC2::Image::Id'
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
  LaunchTemplate:
    Type: AWS::EC2::LaunchTemplate
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Properties:
LaunchTemplateData:
  ImageId:
    Ref: LatestAmiId
AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
Properties:
  MixedInstancesPolicy:
    LaunchTemplate:
      LaunchTemplateSpecification:
        LaunchTemplateId:
          Ref: LaunchTemplate
        Version:
          Fn::GetAtt: LaunchTemplate.LatestVersionNumber
    Overrides:
      - InstanceRequirements:
        AllowedInstanceTypes:
          - m5.*
          - c5.*
        VCPUCount:
          Min: 2
          Max: 4
        MemoryMiB:
          Min: 4000
          Max: 8000
  MaxSize: 1
  MinSize: 0
  DesiredCapacity: 1
  VPCZoneIdentifier:
    - Ref: Subnet

Parameters:
LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value'AWS::EC2::Image::Id'
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24

LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      ImageId:
        Ref: LatestAmiId

AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    MixedInstancesPolicy:
      LaunchTemplate:
        LaunchTemplateSpecification:
          LaunchTemplateId:
            Ref: LaunchTemplate
          Version:
            Fn::GetAtt: LaunchTemplate.LatestVersionNumber
        Overrides:
          - InstanceType: t2.micro
    MaxSize: 1
    MinSize: 0
    DesiredCapacity: 1
    VPCZoneIdentifier:
      - Ref: Subnet

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
LatestAmiId:
   Description: Region specific latest AMI ID from the Parameter Store
   Type: AWS::SSM::Parameter::Value'AWS::EC2::Image::Id'
   Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2
Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
  LaunchTemplate:
    Type: AWS::EC2::LaunchTemplate
    Properties:
      LaunchTemplateData:
        ImageId:
          Ref: LatestAmiId
  AutoScalingGroup:
    Type: AWS::AutoScaling::AutoScalingGroup
    Properties:
      MixedInstancesPolicy:
        LaunchTemplate:
          LaunchTemplateSpecification:
            LaunchTemplateId:
              Ref: LaunchTemplate
            Version:
              Fn::GetAtt: LaunchTemplate.LatestVersionNumber
        Overrides:
          - InstanceRequirements:
              AllowedInstanceTypes:
                - c4.large
              V Cp u C ount:
                Max: 16
                Min: 1
              MemoryMiB:
                Min: 1000
                Max: 17000
        MaxSize: 1
[CT.AUTOSCALING.PR.11] Require only AWS Nitro instance types that support network traffic encryption between instances to be added to an Amazon EC2 Auto Scaling group, when overriding a launch template

This control checks whether an Amazon EC2 Auto Scaling group uses AWS Nitro instance types that support network traffic encryption between instances, when overriding a launch template. The Auto Scaling group creates this override in the AWS::Autoscaling::AutoScalingGroup.MixedInstancesPolicy.LaunchTemplate parameter.

- **Control objective:** Encrypt data in transit, Protect data integrity, Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AutoScaling::AutoScalingGroup
- **AWS CloudFormation guard rule:** [CT.AUTOSCALING.PR.11 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.AUTOSCALING.PR.11 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.AUTOSCALING.PR.11 example templates](#)

**Explanation**

The Nitro System is a collection of hardware and software components built by AWS to enable high performance, high availability, and high security. The Nitro System provides enhanced security because it continuously monitors, protects, and verifies the instance's hardware and firmware. Virtualization resources are offloaded to dedicated hardware and software, thereby minimizing the
attack surface. The Nitro System security model is locked down to prohibit administrative access, greatly reducing the possibility of human error and tampering.

AWS provides secure and private connectivity between Amazon EC2 instances of all types. In addition, some instance types use the offload capabilities of the underlying Nitro System hardware to encrypt in-transit traffic between instances, automatically. This encryption uses Authenticated Encryption with Associated Data (AEAD) algorithms, and 256-bit encryption. It has no impact on network performance.

Usage considerations

- This control applies only to Amazon EC2 Auto Scaling groups that are configured with launch template overrides that specify an instance type or instance attributes. A LaunchTemplate.LaunchTemplateSpecification configuration specifies one or more Overrides that also include InstanceType or InstanceRequirements.
- This control does not check the instance type configured on a launch template. To ensure that launch templates use Nitro instances types that support encryption in-transit between instances, use this control in conjunction with related controls that check launch templates for Nitro instance types that support encryption in-transit between instances.
- To support in-transit traffic encryption between instances, the Amazon EC2 instances must be one of the types required by this control, the instances must be in the same AWS Region, and they must be in the same VPC or group of peered VPCs, in which traffic does not pass through a virtual network device or service, such as a load balancer or a transit gateway.

Remediation for rule failure

In MixedInstancesPolicy.LaunchTemplate with one or more Overrides that include InstanceType or InstanceRequirements, set either InstanceType to an EC2 instance type based on the AWS Nitro system that supports encryption in-transit between instances, or set AllowedInstanceTypes in InstanceRequirements to one or more EC2 instance types based on the AWS Nitro system that supports encryption in-transit between instances.

The examples that follow show how to implement this remediation.
Amazon EC2 Auto Scaling Group - Example One

An Amazon EC2 Auto Scaling group configured with a launch template override and an instance type that is based on the AWS Nitro system. It supports encryption in transit between instances. The example is shown in JSON and in YAML.

JSON example

```json
{
    "AutoScalingGroup": {
        "Type": "AWS::AutoScaling::AutoScalingGroup",
        "Properties": {
            "MixedInstancesPolicy": {
                "LaunchTemplate": {
                    "LaunchTemplateSpecification": {
                        "LaunchTemplateId": {
                            "Ref": "LaunchTemplate"
                        },
                        "Version": {
                            "Fn::GetAtt": "LaunchTemplate.LatestVersionNumber"
                        }
                    },
                    "Overrides": [
                        {
                            "InstanceType": "c5a.large"
                        }
                    ]
                }
            },
            "MaxSize": 1,
            "MinSize": 0,
            "DesiredCapacity": 1,
            "VPCZoneIdentifier": [
                {
                    "Ref": "Subnet"
                }
            ]
        }
    }
}
```
YAML example

```
AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    MixedInstancesPolicy:
      LaunchTemplate:
        LaunchTemplateSpecification:
          LaunchTemplateId: !Ref 'LaunchTemplate'
          Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
          Overrides:
            - InstanceType: c5a.large
  MaxSize: 1
  MinSize: 0
  DesiredCapacity: 1
  VPCZoneIdentifier:
    - !Ref 'Subnet'
```

The examples that follow show how to implement this remediation.

Amazon EC2 Auto Scaling Group - Example Two

An Amazon EC2 Auto Scaling group configured with a launch template override and its instance requirements, which specify a list of allowed instances that are based on the AWS Nitro system. It supports encryption in transit between instances. The example is shown in JSON and in YAML.

JSON example

```
{
  "AutoScalingGroup": {
    "Type": "AWS::AutoScaling::AutoScalingGroup",
    "Properties": {
      "MixedInstancesPolicy": {
        "LaunchTemplate": {
          "LaunchTemplateSpecification": {
            "LaunchTemplateId": {
              "Ref": "LaunchTemplate"
            },
            "Version": {
```

Proactive controls
"Fn::GetAtt": "LaunchTemplate.LatestVersionNumber"

"Overrides": [
  {
    "InstanceRequirements": {
      "AllowedInstanceTypes": [
        "c5a.*",
        "m6a.*"
      ],
      "VCpuCount": {
        "Min": 2,
        "Max": 4
      },
      "MemoryMiB": {
        "Min": 4000,
        "Max": 8000
      }
    }
  }
],

"MaxSize": 1,
"MinSize": 0,
"DesiredCapacity": 1,
"VPCZoneIdentifier": [
  {
    "Ref": "Subnet"
  }
]
}

YAML example

AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    MixedInstancesPolicy:
LaunchTemplate:
     LaunchTemplateSpecification:
        LaunchTemplateId: !Ref 'LaunchTemplate'
        Version: !GetAtt 'LaunchTemplate.LatestVersionNumber'
    Overrides:
        - InstanceRequirements:
            AllowedInstanceTypes:
                - c5a.*
                - m6a.*
            VcpuCount:
                Min: 2
                Max: 4
            MemoryMiB:
                Min: 4000
                Max: 8000
        MaxSize: 1
        MinSize: 0
        DesiredCapacity: 1
        VPCZoneIdentifier:
            - !Ref 'Subnet'

CT.AUTOSCALING.PR.11 rule specification

# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
#   Rule Specification     #
# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
# # Rule Identifier: #
#   autoscaling_group_nitro_encryption_in_transit_override_check #
# # Description: #
#   This control checks whether an Auto Scaling group, when using a mixed instance #
#   policy, overrides only those launch templates with AWS Nitro #
#   instance types that support encryption in transit between instances. #
# # Reports on: #
#   AWS::AutoScaling::AutoScalingGroup #
# # Evaluates: #
#   AWS CloudFormation, AWS CloudFormation hook #
# Rule Parameters:
#   None
#
# Scenarios:
# Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document does not contain any Amazon EC2 auto scaling group resources
#   Then: SKIP
# Scenario: 2
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an Amazon EC2 auto scaling group resource
#   And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has not been provided or
#   has been provided as an empty list
#   Then: SKIP
# Scenario: 3
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an Amazon EC2 auto scaling group resource
#   And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as a non-empty list
#   And: No entries in 'Overrides' include 'InstanceType' or 'InstanceRequirements'
#   Then: SKIP
# Scenario: 4
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an Amazon EC2 auto scaling group resource
#   And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as a non-empty list
#   And: For an entry in 'Overrides', 'InstanceType' has been provided and set to an instance type
#   other than a Nitro instance type that supports encryption in-transit between instances
#   Then: FAIL
# Scenario: 5
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an Amazon EC2 auto scaling group resource
#   And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as a non-empty list
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 auto scaling group resource
# And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as a non-empty list
# And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
# And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has not been provided or has been provided as an empty list
# Then: FAIL

# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 auto scaling group resource
# And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as a non-empty list
# And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
# And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has been provided as a non-empty list
# And: An entry in 'AllowedInstanceTypes' is set to an instance type other than a Nitro instance type
# That supports encryption in-transit between instances
# Then: FAIL

# Scenario: 8
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon EC2 auto scaling group resource
# And: 'Overrides' in 'MixedInstancesPolicy.LaunchTemplate' has been provided as a non-empty list
# And: For an entry in 'Overrides', 'InstanceRequirements' has been provided
# And: For the same entry in 'Overrides', 'AllowedInstanceTypes' has been provided as a non-empty list
# And: Every entry in 'AllowedInstanceTypes' is set to a Nitro instance type that supports encryption in-transit between instances
# Then: PASS

# Constants
let INPUT_DOCUMENT = this
let AUTOSCALING_GROUP_TYPE = "AWS::AutoScaling::AutoScalingGroup"
let NITRO_ENCRYPTION_IN_TRANSIT_INSTANCE_TYPES = ["^/c5a\./, ^/c5ad\./, ^/c5n\./, ^/c6a\./, ^/c6gn\./, ^/c6i\./, ^/c6id\./, ^/c6in \./, ^/c7g\./, ^/c7gd\./, ^/c7gn\./, ^/c7i\./,
  ^/d3\./, ^/d3en\./, ^/d11\./,
  ^/g4ad\./, ^/g4dn\./, ^/g5\./,
  ^/hpc6a\./, ^/hpc6id\./, ^/hpc7a\./, ^/hpc7g\./,
  ^/i3en\./, ^/i4g\./, ^/i4i1\./, ^/im4gn\./, ^/inf1\./, ^/inf2\./, ^/is4gen\./,
  ^/m5dn\./, ^/m5n\./, ^/m5zn\./, ^/m6a\./, ^/m6i\./, ^/m6id\./, ^/m6idn\./, ^/m6in \./, ^/m7a\./, ^/m7g\./, ^/m7gd\./, ^/m7i\./, ^/m7i\-flex\./,
  ^/p3dn\./, ^/p4d\./, ^/p4de\./, ^/p5\./,
  ^/r5dn\./, ^/r5n\./, ^/r6a\./, ^/r6i\./, ^/r6id\./, ^/r6idn\./, ^/r6in\./, ^/r7a \./, ^/r7g\./, ^/r7gd\./, ^/r7iz\./,
  ^/trn1\./, ^/trn1n\./,
  ^/u\-12tb1\./, ^/u\-18tb1\./, ^/u\-24tb1\./, ^/u\-3tb1\./, ^/u\-6tb1\./, ^/u\-9tb1\./,
  ^/vt1\./,
  ^/x2idn\./, ^/x2iedn\./, ^/x2iezn\./
]

# Assignments
#
let autoscaling_groups = Resources.*[ Type == %AUTOSCALING_GROUP_TYPE ]

#
# Primary Rules
#
rule autoscaling_group_nitro_encryption_in_transit_override_check when
  is_cfn_template(%INPUT_DOCUMENT)

%autoscaling_groups not empty {
  check(%autoscaling_groups.Properties)
    <=
      [CT.AUTOSCALING.PR.11]: Require an Amazon EC2 instance to use a Nitro instance type that supports encryption in transit between instances when created using the 'AWS::AutoScaling::AutoScalingGroup' resource type
      [FIX]: In 'MixedInstancesPolicy.LaunchTemplate' with one or more 'Overrides' that include 'InstanceType' or 'InstanceRequirements', set either 'InstanceType' to an Amazon EC2 instance type based on the AWS Nitro system that supports encryption in-transit between instances, or set 'AllowedInstanceTypes' in 'InstanceRequirements' to one or more Amazon EC2 instance types based on the AWS Nitro system that supports encryption in-transit between instances.
rule autoscaling_group_nitro_encryption_in_transit_override_check when
   is_cfn_hook(%INPUT_DOCUMENT, %AUTOSCALING_GROUP_TYPE) {
   check(%INPUT_DOCUMENT.%AUTOSCALING_GROUP_TYPE.resourceProperties)
   =>
   [CT.AUTOSCALING.PR.11]: Require an Amazon EC2 instance to use a Nitro instance
type that supports encryption in transit between instances when created using the
'AWS::AutoScaling::AutoScalingGroup' resource type
[FIX]: In 'MixedInstancesPolicy.LaunchTemplate' with one or more 'Overrides'
that include 'InstanceType' or 'InstanceRequirements', set either 'InstanceType' to an
Amazon EC2 instance type based on the AWS Nitro
system that supports encryption in-transit between instances, or set
'AllowedInstanceTypes' in 'InstanceRequirements' to one or more Amazon EC2 instance
types based on the AWS Nitro system
that supports encryption in-transit between instances.
}
rule filter_launch_template_overrides(autoscaling_group) {
    %autoscaling_group {
        MixedInstancesPolicy exists
        MixedInstancesPolicy is_struct

        MixedInstancesPolicy {
            LaunchTemplate exists
            LaunchTemplate is_struct

            LaunchTemplate {
                Overrides exists
                Overrides is_list
                Overrides not empty

                some Overrides[*] {
                    InstanceType exists or
                    InstanceRequirements exists
                }
            }
        }
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.AUTOSCALING.PR.11 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24

LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      ImageId:
        Ref: LatestAmiId

AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    MixedInstancesPolicy:
      LaunchTemplate:
        LaunchTemplateSpecification:
          LaunchTemplateId:
            Ref: LaunchTemplate
          Version:
            Fn::GetAtt: LaunchTemplate.LatestVersionNumber
        Overrides:
        - InstanceType: c5a.large
MaxSize: 1
MinSize: 0
DesiredCapacity: 1
VPCZoneIdentifier:
  - Ref: Subnet

PASS Example - Use this template to verify a compliant resource creation.

Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
  LaunchTemplate:
    Type: AWS::EC2::LaunchTemplate
    Properties:
      LaunchTemplateData:
        ImageId:
          Ref: LatestAmiId
  AutoScalingGroup:
    Type: AWS::AutoScaling::AutoScalingGroup
    Properties:
      MixedInstancesPolicy:
        LaunchTemplate:
          LaunchTemplateSpecification:
            LaunchTemplateId:
              Ref: LaunchTemplate
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
LatestAmiId:
  Description: Region specific latest AMI ID from the Parameter Store
  Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
  Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
  Properties:
    LaunchTemplateData:
      ImageId:
        Ref: LatestAmiId

AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
  Properties:
    MixedInstancesPolicy:
      LaunchTemplate:
        LaunchTemplateSpecification:
          LaunchTemplateId:
            Ref: LaunchTemplate
          Version:
            Fn::GetAtt: LaunchTemplate.LatestVersionNumber
        Overrides:
          - InstanceType: t2.micro
          MaxSize: 1
          MinSize: 0
          DesiredCapacity: 1
          VPCZoneIdentifier:
            - Ref: Subnet

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Parameters:
  LatestAmiId:
    Description: Region specific latest AMI ID from the Parameter Store
    Type: AWS::SSM::Parameter::Value 'AWS::EC2::Image::Id'
    Default: /aws/service/ami-amazon-linux-latest/amzn2-ami-hvm-x86_64-gp2

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  Subnet:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.0.0/24
LaunchTemplate:
  Type: AWS::EC2::LaunchTemplate
Properties:
  LaunchTemplateData:
    ImageId:
      Ref: LatestAmiId
AutoScalingGroup:
  Type: AWS::AutoScaling::AutoScalingGroup
Properties:
  MixedInstancesPolicy:
    LaunchTemplate:
      LaunchTemplateSpecification:
        LaunchTemplateId:
          Ref: LaunchTemplate
        Version:
          Fn::GetAtt: LaunchTemplate.LatestVersionNumber
      Overrides:
        - InstanceRequirements:
          AllowedInstanceTypes:
            - c4.large
          V Cp uCount:
            Max: 16
            Min: 1
          MemoryMiB:
            Min: 1000
            Max: 17000
        MaxSize: 1
        MinSize: 0
        DesiredCapacity: 1
        VPCZoneIdentifier:
          - Ref: Subnet

Amazon ElastiCache controls

Topics
• [CT.ELASTICACHE.PR.1] Require an Amazon ElastiCache for Redis cluster to have automatic backups activated

• [CT.ELASTICACHE.PR.2] Require an Amazon ElastiCache for Redis cluster to have automatic minor version upgrades activated

• [CT.ELASTICACHE.PR.3] Require an Amazon ElastiCache for Redis replication group to have automatic failover activated

• [CT.ELASTICACHE.PR.4] Require an Amazon ElastiCache replication group to have encryption at rest activated

• [CT.ELASTICACHE.PR.5] Require an Amazon ElastiCache for Redis replication group to have encryption in transit activated

• [CT.ELASTICACHE.PR.6] Require an Amazon ElastiCache cache cluster to use a custom subnet group

• [CT.ELASTICACHE.PR.7] Require an Amazon ElastiCache replication group of earlier Redis versions to have Redis AUTH activated

• [CT.ELASTICACHE.PR.8] Require an Amazon ElastiCache replication group of later Redis versions to have RBAC authentication activated

[CT.ELASTICACHE.PR.1] Require an Amazon ElastiCache for Redis cluster to have automatic backups activated

This control checks whether an Amazon ElastiCache Redis cluster has automatic backups enabled.

• **Control objective:** Improve resiliency

• **Implementation:** AWS CloudFormation guard rule

• **Control behavior:** Proactive

• **Resource types:** AWS::ElastiCache::CacheCluster

• **AWS CloudFormation guard rule:** [CT.ELASTICACHE.PR.1 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICACHE.PR.1 rule specification](#)

• For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.ELASTICACHE.PR.1 example templates](#)
Explanation

When automatic backups are enabled, Amazon ElastiCache creates a backup of the cluster on a daily basis. There is no impact on the cluster, and the change is immediate. Automatic backups can help guard against data loss. In the event of a failure, you can create a new cluster, and restore your data from the most recent backup.

Usage considerations

- This control applies only to Amazon ElastiCache cache clusters with an engine type of `redis`.

Remediation for rule failure

Set the value of the `SnapshotRetentionLimit` parameter to an integer value greater than 0.

The examples that follow show how to implement this remediation.

Amazon ElastiCache Cache Cluster - Example

An Amazon ElastiCache cache cluster configured with automatic backups enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
    "CacheCluster": {
        "Type": "AWS::ElastiCache::CacheCluster",
        "Properties": {
            "Engine": "redis",
            "NumCacheNodes": 1,
            "CacheNodeType": "cache.t3.micro",
            "VpcSecurityGroupIds": [
                {
                    "Ref": "SecurityGroup"
                }
            ],
            "CacheSubnetGroupName": {
                "Ref": "SubnetGroup"
            }
        }
    }
}
```
"SnapshotRetentionLimit": 5
}
}
}

YAML example

CacheCluster:
  Type: AWS::ElastiCache::CacheCluster
Properties:
  Engine: redis
  NumCacheNodes: 1
  CacheNodeType: cache.t3.micro
  VpcSecurityGroupIds:
    - !Ref 'SecurityGroup'
  CacheSubnetGroupName: !Ref 'SubnetGroup'
  SnapshotRetentionLimit: 5

CT.ELASTICACHE.PR.1 rule specification

# ###################################################################
##  Rule Specification     ##
# ###################################################################
#
# Rule Identifier:
#   elasticache_redis_cluster_auto_backup_check
#
# Description:
#   This control checks whether an Amazon ElastiCache Redis cluster has automatic
#   backups enabled.
#
# Reports on:
#   AWS::ElastiCache::CacheCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any ElastiCache cache cluster
resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an ElastiCache CacheCluster resource
# And: 'Engine' has not been provided or has been provided and is not set to
'redis'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an ElastiCache cache cluster resource
# And: 'Engine' has been provided and set to 'redis'
# And: 'SnapshotRetentionLimit' has not been provided
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an ElastiCache cache cluster resource
# And: 'Engine' has been provided and set to 'redis'
# And: 'SnapshotRetentionLimit' has been provided and set to a non-integer value
or an integer value of 0
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an ElastiCache cache cluster resource
# And: 'Engine' has been provided and set to 'redis'
# And: 'SnapshotRetentionLimit' has been provided and set to an integer value
greater than 0
# Then: PASS

#
# Constants
#
let ELASTICACHE_CACHE_CLUSTER_TYPE = "AWS::ElastiCache::CacheCluster"
let REDIS_ENGINE_TYPE = "redis"
let INPUT_DOCUMENT = this

# # Assignments #
let elasticache_clusters = Resources.*[ Type == %ELASTICACHE_CACHE_CLUSTER_TYPE ]

# # Primary Rules #
rule elasticache_redis_cluster_auto_backup_check when is_cfn_template(%INPUT_DOCUMENT)
%elasticache_clusters not empty {
    check(%elasticache_clusters.Properties)
<<
    [CT.ELASTICACHE.PR.1]: Require an Amazon ElastiCache for Redis cluster to have automatic backups activated
    [FIX]: Set the value of the 'SnapshotRetentionLimit' parameter to an integer value greater than 0.
>>
}

rule elasticache_redis_cluster_auto_backup_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTICACHE_CACHE_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%ELASTICACHE_CACHE_CLUSTER_TYPE.resourceProperties)
<<
    [CT.ELASTICACHE.PR.1]: Require an Amazon ElastiCache for Redis cluster to have automatic backups activated
    [FIX]: Set the value of the 'SnapshotRetentionLimit' parameter to an integer value greater than 0.
>>
}

# # Parameterized Rules #
rule check(elasticache_cache_cluster) {
    %elasticache_cache_cluster [
        # Scenario 2
        Engine exists
        Engine == %REDIS_ENGINE_TYPE
    ] {
        # Scenarios 3, 4 and 5
        SnapshotRetentionLimit exists
    }
CT.ELASTICACHE.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/16
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16

Subnet:
  Type: AWS::EC2::Subnet
  Properties:
VpcId:
  Ref: VPC
CidrBlock: 10.0.0.0/16
AvailabilityZone:
  Fn::Select:
    - 0
    - Fn::GetAZs: ''
SecurityGroup:
  Type: AWS::EC2::SecurityGroup
Properties:
  GroupDescription: test
  VpcId:
    Ref: VPC
SecurityGroupIngress:
  - FromPort: 443
    IpProtocol: tcp
    ToPort: 443
    CidrIp: 0.0.0.0/0
SubnetGroup:
  Type: AWS::ElastiCache::SubnetGroup
Properties:
  Description: Cache Subnet Group
  SubnetIds:
    - Ref: Subnet
CacheCluster:
  Type: AWS::ElastiCache::CacheCluster
Properties:
  Engine: redis
  NumCacheNodes: 1
  CacheNodeType: cache.t3.micro
  VpcSecurityGroupIds:
    - Ref: SecurityGroup
  CacheSubnetGroupName:
    Ref: SubnetGroup
  SnapshotRetentionLimit: 0

[CT.ELASTICACHE.PR.2] Require an Amazon ElastiCache for Redis cluster to have automatic minor version upgrades activated

This control checks whether an Amazon ElastiCache for Redis cluster has automatic minor version upgrades enabled.
Control objective: Manage vulnerabilities

Implementation: AWS CloudFormation guard rule

Control behavior: Proactive

Resource types: AWS::ElastiCache::CacheCluster

AWS CloudFormation guard rule: CT.ELASTICACHE.PR.2 rule specification

Details and examples

For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.ELASTICACHE.PR.2 rule specification

For examples of PASS and FAIL CloudFormation templates related to this control, see: CT.ELASTICACHE.PR.2 example templates

Explanation

By enabling automatic minor version upgrades, you ensure that the latest minor version updates to Amazon ElastiCache cache clusters are installed. These upgrades may include security patches and bug fixes. Keeping up to date with patch installation is an important step in securing systems.

Usage considerations

This control applies only to Amazon ElastiCache cache clusters with an engine type of redis and an engine version of 6.0 or later.

Remediation for rule failure

Set the value of the AutoMinorVersionUpgrade parameter to true.

The examples that follow show how to implement this remediation.

Amazon ElastiCache Cache Cluster - Example

An Amazon ElastiCache cache cluster configured with automatic minor version upgrades enabled. The example is shown in JSON and in YAML.

JSON example
YAML example

ElastCacheCacheCluster:
  Type: AWS::ElastiCache::CacheCluster
  Properties:
    CacheNodeType: cache.t3.micro
    NumCacheNodes: '1'
    VpcSecurityGroupIds:
      - !GetAtt 'SecurityGroup.GroupId'
    Engine: redis
    EngineVersion: 6.0
    AutoMinorVersionUpgrade: true

CT.ELASTICACHE.PR.2 rule specification
# Rule Specification

## Rule Identifier:
elasticache_auto_minor_version_upgrade_check

## Description:
This control checks whether an Amazon ElastiCache for Redis cluster has automatic minor version upgrades enabled.

## Reports on:
AWS::ElastiCache::CacheCluster

## Evaluates:
AWS CloudFormation, AWS CloudFormation hook

## Rule Parameters:
None

## Scenarios:
Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any ElastiCache cluster resources
Then: SKIP

Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElastiCache cluster resource
And: 'Engine' has not been provided or has been provided and is not set to 'redis'
Then: SKIP

Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElastiCache cluster resource
And: 'Engine' has been provided and is set to 'redis'
And: 'EngineVersion' has been provided and set to a version less than 6
Then: SKIP

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElastiCache cluster resource
And: 'Engine' has been provided and is set to 'redis'
And: 'EngineVersion' has not been provided or 'EngineVersion' has been provided and set to a version greater than or equal to 6
And: 'AutoMinorVersionUpgrade' has not been provided
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElastiCache cluster resource
And: 'Engine' has been provided and is set to 'redis'
And: 'EngineVersion' has not been provided or 'EngineVersion' has been provided and set to a version greater than or equal to 6
And: 'AutoMinorVersionUpgrade' has been provided and set to a value other than bool(true)
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElastiCache cluster resource
And: 'Engine' has been provided and is set to 'redis'
And: 'EngineVersion' has not been provided or 'EngineVersion' has been provided and set to a version greater than or equal to 6
And: 'AutoMinorVersionUpgrade' has been provided and set to bool(true)
Then: PASS

# Constants

let ELASTICACHE_CLUSTER_TYPE = "AWS::ElastiCache::CacheCluster"
let INPUT_DOCUMENT = this
let REDIS_ENGINE_TYPE = "redis"
let UNSUPPORTED_REDIS_ENGINE_VERSIONS_FOR_AUTO_UPGRADE = [
  /^2\./,
  /^3\./,
  /^4\./,
  /^5\./
]

# Assignments

let elasticache_clusters = Resources.*[ Type == %ELASTICACHE_CLUSTER_TYPE ]

# Primary Rules
#
rule elasticache_auto_minor_version_upgrade_check when is_cfn_template(%INPUT_DOCUMENT)
  %elasticache_clusters not empty

  { check(%elasticache_clusters.Properties)
    <<
    [CT.ELASTICACHE.PR.2]: Require an Amazon ElastiCache for Redis cluster to have automatic minor version upgrades activated
    [FIX]: Set the value of the 'AutoMinorVersionUpgrade' parameter to true.
    >>
  }

rule elasticache_auto_minor_version_upgrade_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTICACHE_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTICACHE_CLUSTER_TYPE.resourceProperties)
  <<
  [CT.ELASTICACHE.PR.2]: Require an Amazon ElastiCache for Redis cluster to have automatic minor version upgrades activated
  [FIX]: Set the value of the 'AutoMinorVersionUpgrade' parameter to true.
  >>
}

# Parameterized Rules
#
rule check(elasticache_clusters) {
  %elasticache_clusters [
    # Scenario 2
    Engine exists
    Engine == %REDIS_ENGINE_TYPE

    # Scenario 3
    EngineVersion not exists or
    EngineVersion not in %UNSUPPORTED_REDIS_ENGINE_VERSIONS_FOR_AUTO_UPGRADE
  ] {
    # Scenario 4, 5 and 6
    AutoMinorVersionUpgrade exists
    AutoMinorVersionUpgrade == true
  }
}
# Utility Rules

```plaintext
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```plaintext
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

## CT.ELASTICACHE.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:**

- **SecurityGroup:**
  - **Type:** AWS::EC2::SecurityGroup
  - **Properties:**
    - **GroupDescription:** Example security group
    - **SecurityGroupIngress:**
      - **IpProtocol:** tcp
        - **FromPort:** 11211
        - **ToPort:** 11211
        - **CidrIp:** 10.0.0.0/24

- **ElastiCacheCacheCluster:**
  - **Type:** AWS::Elasticache::CacheCluster
  - **Properties:**
    - **CacheNodeType:** cache.t3.micro
    - **NumCacheNodes:** '1'
    - **VpcSecurityGroupIds:**
      - **Fn::GetAtt:**
        - **SecurityGroup**
        - **GroupId**
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: Example security group
    SecurityGroupIngress:
      - IpProtocol: tcp
        FromPort: 11211
        ToPort: 11211
        CidrIp: 10.0.0.0/24

ElastiCacheCacheCluster:
  Type: AWS::ElastiCache::CacheCluster
  Properties:
    CacheNodeType: cache.t3.micro
    NumCacheNodes: '1'
    VpcSecurityGroupIds:
      - Fn::GetAtt:
        - SecurityGroup
        - GroupId
    Engine: redis
    AutoMinorVersionUpgrade: false

[CT.ELASTICACHE.PR.3] Require an Amazon ElastiCache for Redis replication group to have automatic failover activated

This control checks whether an Amazon ElastiCache Redis replication group has automatic failover enabled.

- **Control objective:** Improve resiliency
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElastiCache::ReplicationGroup
- **AWS CloudFormation guard rule:** [CT.ELASTICACHE.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICACHE.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.ELASTICACHE.PR.3 example templates](#)

**Explanation**

When automatic failover is enabled for a replication group, the role of primary node will fail over to one of the read replicas, automatically. This failover and replica promotion ensure that you can resume writing to the new primary as soon as promotion is complete, thereby reducing overall downtime in case of failure.

**Remediation for rule failure**

Set the value of the `AutomaticFailoverEnabled` parameter to true.

The examples that follow show how to implement this remediation.

**Amazon ElastiCache Replication Group - Example**

An Amazon ElastiCache replication group configured with automatic failover enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "ReplicationGroup": {
    "Type": "AWS::ElastiCache::ReplicationGroup",
    "Properties": {
      "ReplicationGroupDescription": "Sample replication group",
      "CacheNodeType": "cache.t3.micro",
      "SecurityGroupIds": [
        {
          "Ref": "SecurityGroup"
        }
      ]
    }
  }
}
```
YAML example

ReplicationGroup:
  Type: AWS::ElastiCache::ReplicationGroup
  Properties:
    ReplicationGroupDescription: Sample replication group
    CacheNodeType: cache.t3.micro
    SecurityGroupIds:
      - !Ref 'SecurityGroup'
    CacheSubnetGroupName: !Ref 'SubnetGroup'
    NumCacheClusters: 2
    Engine: redis
    AutomaticFailoverEnabled: true

CT.ELASTICACHE.PR.3 rule specification

# ###################################################################
##     Rule Specification     ##
# ###################################################################
# Rule Identifier:
# elasticache_repl_grp_backup_enabled_check
# Description:
# This control checks whether an Amazon ElastiCache Redis replication group has
# automatic failover enabled.
#
# Reports on:
#   AWS::ElastiCache::ReplicationGroup
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any ElastiCache replication group
#          resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache replication group resource
#     And: 'Engine' has not been provided or has been provided and is not set to
#          'redis'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache replication group resource
#     And: 'Engine' has been provided and set to 'redis'
#     And: 'AutomaticFailoverEnabled' has not been provided
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache replication group resource
#     And: 'Engine' has been provided and set to 'redis'
#     And: 'AutomaticFailoverEnabled' has been provided and is set to a value other
#          than bool(true)
#     Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache replication group resource
#     And: 'Engine' has been provided and set to 'redis'
And: 'AutomaticFailoverEnabled' has been provided and is set to a value of `bool(true)`
Then: PASS

# Constants

let ELASTICACHE_REPLICATION_GROUP_TYPE = "AWS::ElastiCache::ReplicationGroup"
let REDIS_ENGINE_TYPE = "redis"
let INPUT_DOCUMENT = this

# Assignments

let elasticache_replication_groups = Resources.*[ Type == %ELASTICACHE_REPLICATION_GROUP_TYPE ]

# Primary Rules

rule elasticache_repl_grp_auto_failover_enabled_check when is_cfn_template(%INPUT_DOCUMENT)

%elasticache_replication_groups not empty {
  check(%elasticache_replication_groups.Properties)
  <<
  [CT.ELASTICACHE.PR.3]: Require an Amazon ElastiCache for Redis replication group to have automatic failover activated
  [FIX]: Set the value of the 'AutomaticFailoverEnabled' parameter to true.
  >>
}

rule elasticache_repl_grp_auto_failover_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTICACHE_REPLICATION_GROUP_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTICACHE_REPLICATION_GROUP_TYPE.resourceProperties)
  <<
  [CT.ELASTICACHE.PR.3]: Require an Amazon ElastiCache for Redis replication group to have automatic failover activated
  [FIX]: Set the value of the 'AutomaticFailoverEnabled' parameter to true.
  >>
}

# Parameterized Rules
# rule check(elasticache_replication_group) {
  elasticache_replication_group [
    # Scenario 2
    Engine exists
    Engine == %REDIS_ENGINE_TYPE
  ] {
    # Scenarios 3, 4 and 5
    AutomaticFailoverEnabled exists
    AutomaticFailoverEnabled == true
  }
}

# Utility Rules

# rule is_cfn_template(doc) {
  doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ELASTICACHE.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16

Subnet:
  Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.0.0/16
AvailabilityZone:
  Fn::Select:
    - 0
    - Fn::GetAZs: ''
SecurityGroup:
  Type: AWS::EC2::SecurityGroup
Properties:
  GroupDescription: Example security group
  VpcId:
    Ref: VPC
  SecurityGroupIngress:
    - FromPort: 443
      IpProtocol: tcp
      ToPort: 443
      CidrIp: 0.0.0.0/0
SubnetGroup:
  Type: AWS::ElastiCache::SubnetGroup
Properties:
  Description: Example subnet group
  SubnetIds:
    - Ref: Subnet
ReplicationGroup:
  Type: AWS::ElastiCache::ReplicationGroup
Properties:
  ReplicationGroupDescription:
    Fn::Sub: ${AWS::StackName}-example
  CacheNodeType: cache.t3.micro
  SecurityGroupIds:
    - Ref: SecurityGroup
  CacheSubnetGroupName:
    Ref: SubnetGroup
  NumCacheClusters: 2
  Engine: redis
  AutomaticFailoverEnabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/16
      AvailabilityZone:
        Fn::Select:
        - 0
        - Fn::GetAZs: ''
  SecurityGroup:
    Type: AWS::EC2::SecurityGroup
    Properties:
      GroupDescription: Example security group
      VpcId:
        Ref: VPC
      SecurityGroupIngress:
        - FromPort: 443
          IpProtocol: tcp
          ToPort: 443
          CidrIp: 0.0.0.0/0
  SubnetGroup:
    Type: AWS::Elasticache::SubnetGroup
    Properties:
      Description: Example subnet group
      SubnetIds:
        - Ref: Subnet
  ReplicationGroup:
    Type: AWS::Elasticache::ReplicationGroup
    Properties:
      ReplicationGroupDescription:
        Fn::Sub: ${AWS::StackName}-example
      CacheNodeType: cache.t3.micro
      SecurityGroupIds:
        - Ref: SecurityGroup
      CacheSubnetGroupName:
        Ref: SubnetGroup

Proactive controls
[CT.ELASTICACHE.PR.4] Require an Amazon ElastiCache replication group to have encryption at rest activated

This control checks whether an Amazon ElastiCache replication group has the encryption-at-rest setting enabled.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElastiCache::ReplicationGroup
- **AWS CloudFormation guard rule:** [CT.ELASTICACHE.PR.4 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICACHE.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.ELASTICACHE.PR.4 example templates](#)

**Explanation**

Encryption of data at rest is a recommended best practice that adds a layer of access management around your data. In case of any compromise to your Amazon ElastiCache replica nodes, this encryption-at-rest setting ensures that your data is protected from unintended access.

**Usage considerations**

- This control requires the use of encryption at rest, which is supported only for replication groups with Redis engine versions of 3.2.6 or above.
Remediation for rule failure

Set the value of the `AtRestEncryptionEnabled` parameter to true.

The examples that follow show how to implement this remediation.

Amazon ElastiCache Replication Group - Example

Amazon ElastiCache replication group configured with encryption at rest enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ElastiCacheReplicationGroup": {
      "Type": "AWS::ElastiCache::ReplicationGroup",
      "Properties": {
         "CacheSubnetGroupName": {
            "Ref": "SubnetGroup"
         },
         "CacheNodeType": "cache.t3.medium",
         "NumCacheClusters": 2,
         "Engine": "redis",
         "ReplicationGroupDescription": "Sample replication group",
         "AtRestEncryptionEnabled": true
      }
   }
}
```

**YAML example**

```yaml
ElastiCacheReplicationGroup:    
   Type: AWS::ElastiCache::ReplicationGroup     
   Properties:       
      CacheSubnetGroupName: !Ref 'SubnetGroup'       
      CacheNodeType: cache.t3.medium       
      NumCacheClusters: 2       
      Engine: redis       
      ReplicationGroupDescription: Sample replication group       
      AtRestEncryptionEnabled: true
```
CT.ELASTICACHE.PR.4 rule specification

# ######################################################################
##       Rule Specification        ##
# ######################################################################
#
# Rule Identifier:
#  elasticache_repl_grp_encrypted_at_rest_check
#
# Description:
#  This control checks whether an Amazon ElastiCache replication group has the
#  encryption-at-rest setting enabled.
#
# Reports on:
#  AWS::ElastiCache::ReplicationGroup
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#  None
#
# Scenarios:
#  Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any ElastiCache ReplicationGroup
#          resources
#     Then: SKIP
#  Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache ReplicationGroup resource
#          And: 'Engine' has not been provided or has been provided and is not set to
#              'redis'
#     Then: SKIP
#  Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an ElastiCache ReplicationGroup resource
And: 'Engine' has been provided and set to 'redis'
And: 'AtRestEncryptionEnabled' has not been provided
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElastiCache ReplicationGroup resource
And: 'Engine' has been provided and set to 'redis'
And: 'AtRestEncryptionEnabled' has been provided and is set to a value other than bool(true)
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElastiCache ReplicationGroup resource
And: 'Engine' has been provided and set to 'redis'
And: 'AtRestEncryptionEnabled' has been provided and is set to a value of bool(true)
Then: PASS

# Constants

let ELASTICACHE_REPLICATION_GROUP_TYPE = "AWS::ElastiCache::ReplicationGroup"
let INPUT_DOCUMENT = this

# Assignments

let elasticache_replication_groups = Resources.*[ Type == %ELASTICACHE_REPLICATION_GROUP_TYPE ]

# Primary Rules

rule elasticache_repl_grp_encrypted_at_rest_check when is_cfn_template(%INPUT_DOCUMENT)
%elasticache_replication_groups not empty {
    check(%elasticache_replication_groups.Properties)
    <>
    [CT.ELASTICACHE.PR.4]: Require an Amazon ElastiCache replication group to have encryption at rest activated
    [FIX]: Set the value of the 'AtRestEncryptionEnabled' parameter to true.
rule elasticache_repl_grp_encrypted_at_rest_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTICACHE_REPLICATION_GROUP_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTICACHE_REPLICATION_GROUP_TYPE.resourceProperties)
  <<
  [CT.ELASTICACHE.PR.4]: Require an Amazon ElastiCache replication group to have encryption at rest activated
  [FIX]: Set the value of the 'AtRestEncryptionEnabled' parameter to true.
  >>
}

# Parameterized Rules
#
rule check(elasticache_replication_group) {
  %elasticache_replication_group [
    # Scenario 2
    filter_elasticache_replication_group(this)
  ] {
    # Scenario 3
    AtRestEncryptionEnabled exists
    # Scenarios 4 and 5
    AtRestEncryptionEnabled == true
  }
}

rule filter_elasticache_replication_group(elasticache_replication_group) {
  %elasticache_replication_group {
    Engine exists
    Engine == "redis"
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
CT.ELASTICACHE.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'

  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.1.0/24
      AvailabilityZone:
        Fn::Select:
          - 0
          - Fn::GetAZs: ''

  SubnetGroup:
    Type: AWS::ElastiCache::SubnetGroup
    Properties:
      Description: Example subnet group
      SubnetIds:
        - Ref: Subnet

  ElastiCacheReplicationGroup:
    Type: AWS::ElastiCache::ReplicationGroup
    Properties:
      CacheSubnetGroupName:
```
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      - Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      - Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetGroup:
  Type: AWS::Elasticache::SubnetGroup
  Properties:
    Description: Example subnet group
    SubnetIds:
      - Ref: Subnet

ElastiCacheReplicationGroup:
  Type: AWS::Elasticache::ReplicationGroup
  Properties:
    CacheSubnetGroupName:
      - Ref: SubnetGroup
    CacheNodeType: cache.t3.medium
    NumCacheClusters: 2
[CT.ELASTICACHE.PR.5] Require an Amazon ElastiCache for Redis replication group to have encryption in transit activated

This control checks whether an Amazon ElastiCache replication group has encryption-in-transit enabled.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElastiCache::ReplicationGroup
- **AWS CloudFormation guard rule:** [CT.ELASTICACHE.PR.5 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICACHE.PR.5 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.ELASTICACHE.PR.5 example templates](#)

**Explanation**

TLS can be used to help prevent potential attackers from eavesdropping on or manipulating network traffic using person-in-the-middle or similar attacks. Amazon ElastiCache in-transit encryption is an optional feature that you can use to help protect your data when it is moving from one location to another.

**Usage considerations**

- Encryption-in-transit is supported on Amazon ElastiCache replication groups running Redis versions 3.2.6, 4.0.10 and later.
• Because of the processing required to encrypt and decrypt the data at the endpoints, implementing in-transit encryption can reduce performance. We recommend that you benchmark in-transit encryption, compared to no encryption, on your own data, to determine the impact of encryption-in-transit on performance for your implementation.

**Remediation for rule failure**

Set the value of the `TransitEncryptionEnabled` parameter to true.

The examples that follow show how to implement this remediation.

**Amazon ElastiCache Replication Group - Example**

Amazon ElastiCache replication group configured with encryption-in-transit enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ReplicationGroup": {
        "Type": "AWS::ElastiCache::ReplicationGroup",
        "Properties": {
            "ReplicationGroupDescription": "Sample replication group",
            "CacheNodeType": "cache.t3.micro",
            "SecurityGroupIds": [
                "Ref": "SecurityGroup"
            ],
            "CacheSubnetGroupName": {
                "Ref": "SubnetGroup"
            },
            "NumCacheClusters": 2,
            "Engine": "redis",
            "TransitEncryptionEnabled": true
        }
    }
}
```
YAML example

ReplicationGroup:
  Type: AWS::ElastiCache::ReplicationGroup
  Properties:
    ReplicationGroupDescription: Sample replication group
    CacheNodeType: cache.t3.micro
    SecurityGroupIds:
      - !Ref 'SecurityGroup'
    CacheSubnetGroupName: !Ref 'SubnetGroup'
    NumCacheClusters: 2
    Engine: redis
    TransitEncryptionEnabled: true

CT.ELASTICACHE.PR.5 rule specification

# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   elasticache_repl_grp_encrypted_in_transit_check
#
# Description:
#   This control checks whether an Amazon ElastiCache replication group has encryption-
in-transit enabled.
#
# Reports on:
#   AWS::ElastiCache::ReplicationGroup
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any ElastiCache ReplicationGroup resources
# Then: SKIP

# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElastiCache ReplicationGroup resource
# And: 'Engine' has not been provided or has been provided and is not set to 'redis'
# Then: SKIP

# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElastiCache ReplicationGroup resource
# And: 'Engine' has been provided and set to 'redis'
# And: 'TransitEncryptionEnabled' has not been provided
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElastiCache ReplicationGroup resource
# And: 'Engine' has been provided and set to 'redis'
# And: 'TransitEncryptionEnabled' has been provided and set to a value other than bool(true)
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElastiCache ReplicationGroup resource
# And: 'Engine' has been provided and set to 'redis'
# And: 'TransitEncryptionEnabled' has been provided and set to bool(true)
# Then: PASS

# Constants

let ELASTICACHE_REPLICATION_GROUP_TYPE = "AWS::ElastiCache::ReplicationGroup"
let REDIS_ENGINE_TYPE = "redis"
let INPUT_DOCUMENT = this

# Assignments
let elasticache_replication_groups = Resources.*[ Type == %ELASTICACHE_REPLICATION_GROUP_TYPE ]

# Primary Rules
#
rule elasticache_repl_grp_encrypted_in_transit_check when is_cfn_template(%INPUT_DOCUMENT) %elasticache_replication_groups not empty {
  check(%elasticache_replication_groups.Properties)
  <<
    [CT.ELASTICACHE.PR.5]: Require an Amazon ElastiCache for Redis replication group to have encryption in transit activated
    [FIX]: Set the value of the 'TransitEncryptionEnabled' parameter to true.
  >>
}

rule elasticache_repl_grp_encrypted_in_transit_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTICACHE_REPLICATION_GROUP_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTICACHE_REPLICATION_GROUP_TYPE.resourceProperties)
  <<
    [CT.ELASTICACHE.PR.5]: Require an Amazon ElastiCache for Redis replication group to have encryption in transit activated
    [FIX]: Set the value of the 'TransitEncryptionEnabled' parameter to true.
  >>
}

# Parameterized Rules
#
rule check(elasticache_replication_group) {
  %elasticache_replication_group [ 
    # Scenario 2
    Engine exists
    Engine == %REDIS_ENGINE_TYPE
  ] {
    # Scenarios 3, 4 and 5
    TransitEncryptionEnabled exists
    TransitEncryptionEnabled == true
  }
}
# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ELASTICACHE.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
    Type: AWS::EC2::VPC
    Properties:
        CidrBlock: 10.0.0.0/16
Subnet:
    Type: AWS::EC2::Subnet
    Properties:
        VpcId:
            Ref: VPC
        CidrBlock: 10.0.0.0/16
        AvailabilityZone:
            Fn::Select:
                - 0
                - Fn::GetAZs: '
        SecurityGroup:
            Type: AWS::EC2::SecurityGroup
            Properties:
                GroupDescription: Example security group
VpcId:
  Ref: VPC
SecurityGroupIngress:
  - FromPort: 443
    IpProtocol: tcp
    ToPort: 443
    CidrIp: 0.0.0.0/0
SubnetGroup:
  Type: AWS::ElastiCache::SubnetGroup
  Properties:
    Description: Example subnet group
    SubnetIds:
      - Ref: Subnet
ReplicationGroup:
  Type: AWS::ElastiCache::ReplicationGroup
  Properties:
    ReplicationGroupDescription:
      Fn::Sub: ${AWS::StackName}-example
    CacheNodeType: cache.t3.micro
    SecurityGroupIds:
      - Ref: SecurityGroup
    CacheSubnetGroupName:
      Ref: SubnetGroup
    NumCacheClusters: 2
    Engine: redis
    TransitEncryptionEnabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
[CT.ELASTICACHE.PR.6] Require an Amazon ElastiCache cache cluster to use a custom subnet group

This control checks whether an Amazon ElastiCache cache cluster is configured with a custom subnet group.
• **Control objective:** Limit network access
• **Implementation:** AWS CloudFormation guard rule
• **Control behavior:** Proactive
• **Resource types:** AWS::ElastiCache::CacheCluster
• **AWS CloudFormation guard rule:** [CT.ELASTICACHE.PR.6 rule specification](#)

### Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICACHE.PR.6 rule specification](#)
• For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.ELASTICACHE.PR.6 example templates](#)

### Explanation

When you launch an ElastiCache cluster, AWS creates a default subnet group if none exists already. The default group utilizes subnets from the default VPC. Using custom subnet groups allows you to be more restrictive about network access to ElastiCache clusters.

### Usage considerations

- This rule evaluates whether an Amazon ElastiCache cache cluster has been configured with a custom subnet group.
- Custom subnet groups may contain subnets that reside in the default Amazon VPC.

### Remediation for rule failure

Set the `CacheSubnetGroupName` parameter to the name of a custom Amazon ElastiCache cache subnet group.

The examples that follow show how to implement this remediation.

**Amazon ElastiCache Cache Cluster - Example**

An Amazon ElastiCache cache cluster configured with a custom subnet group. The example is shown in JSON and in YAML.
JSON example

```json
{
    "ElasticacheCluster": {
        "Type": "AWS::ElastiCache::CacheCluster",
        "Properties": {
            "Engine": "memcached",
            "CacheNodeType": "cache.t3.micro",
            "NumCacheNodes": "1",
            "CacheSubnetGroupName": {
                "Ref": "SubnetGroup"
            },
            "VpcSecurityGroupIds": [
                {
                    "Fn::GetAtt": [
                        "SecurityGroup",
                        "GroupId"
                    ]
                }
            ]
        }
    }
}
```

YAML example

```
ElasticacheCluster:
    Type: AWS::ElastiCache::CacheCluster
    Properties:
        Engine: memcached
        CacheNodeType: cache.t3.micro
        NumCacheNodes: '1'
        CacheSubnetGroupName: !Ref 'SubnetGroup'
        VpcSecurityGroupIds:
            - !GetAtt 'SecurityGroup.GroupId'
```
CT.ELASTICACHE.PR.6 rule specification

# ####################################################################
## Rule Specification      ##
####################################
#
# Rule Identifier:
#   elasticache_subnet_group_check
#
# Description:
#   This control checks whether an Amazon ElastiCache cache cluster is configured with
#   a custom subnet group.
#
# Reports on:
#   AWS::ElastiCache::CacheCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any ElastiCache cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache cluster resource
#     And: 'CacheSubnetGroupName' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache cluster resource
#     And: 'CacheSubnetGroupName' has been provided as an empty string or as a non-
valid local reference
#     Then: FAIL
#   Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElastiCache cluster resource
# And: 'CacheSubnetGroupName' has been provided and set to a value of 'default'
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElastiCache cluster resource
# And: 'CacheSubnetGroupName' has been provided as a non-empty string or a valid local reference
# Then: PASS

# Constants
#
let ELASTICACHE_CACHE_CLUSTER_TYPE = "AWS::ElastiCache::CacheCluster"
let INPUT_DOCUMENT = this
#
# Assignments
#
let elasticache_cache_clusters = Resources.*[ Type == %ELASTICACHE_CACHE_CLUSTER_TYPE ]
#
# Primary Rules
#
rule elasticache_subnet_group_check when is_cfn_template(%INPUT_DOCUMENT)
  %elasticache_cache_clusters not empty {
    check(%elasticache_cache_clusters.Properties)
    <<
    [CT.ELASTICACHE.PR.6]: Require an Amazon ElastiCache cache cluster to use a custom subnet group
    [FIX]: Set the 'CacheSubnetGroupName' parameter to the name of a custom Amazon Elasticache cache subnet group.
    >>
  }

rule elasticache_subnet_group_check when is_cfn_hook(%INPUT_DOCUMENT,
  %ELASTICACHE_CACHE_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTICACHE_CACHE_CLUSTER_TYPE.resourceProperties)
  <<
  [CT.ELASTICACHE.PR.6]: Require an Amazon ElastiCache cache cluster to use a custom subnet group
[FIX]: Set the 'CacheSubnetGroupName' parameter to the name of a custom Amazon ElastiCache cache subnet group.

```ru
# Parameterized Rules
rule check(elasticache_cache_cluster) {
  %elasticache_cache_cluster {
    # Scenario 2
    CacheSubnetGroupName exists

    # Scenarios 3, 4 and 5
    check_subnet_group_is_not_default(this) or
    check_local_references(%INPUTDocumento, CacheSubnetGroupName,
    "AWS::ElastiCache::SubnetGroup")
  }
}

rule check_subnet_group_is_not_default(elasticache_cache_cluster) {
  %elasticache_cache_cluster {
    check_is_string_and_not_empty(CacheSubnetGroupName)
    CacheSubnetGroupName != "default"
  }
}

# Utility Rules
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
  }
```
CT.ELASTICACHE.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

VPC:

Type: AWS::EC2::VPC
Properties:

  CidrBlock: 10.0.0.0/16
  EnableDnsSupport: 'true'
  EnableDnsHostnames: 'true'

Subnet:

Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.1.0/24
AvailabilityZone:
  Fn::Select:
    - 0
    - Fn::GetAZs: ''
SubnetGroup:
  Type: AWS::ElastiCache::SubnetGroup
  Properties:
    Description: Example subnet group
    SubnetIds:
      - Ref: Subnet
SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: Example security group
    VpcId:
      Ref: VPC
    SecurityGroupIngress:
      - IpProtocol: tcp
        FromPort: 11211
        ToPort: 11211
        CidrIp: 10.0.0.0/24
CacheCluster:
  Type: AWS::ElastiCache::CacheCluster
  Properties:
    Engine: memcached
    CacheNodeType: cache.t3.micro
    NumCacheNodes: '1'
    CacheSubnetGroupName:
      Ref: SubnetGroup
    VpcSecurityGroupIds:
      - Fn::GetAtt: [SecurityGroup, GroupId]

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: Example security group
    SecurityGroupIngress:
      - IpProtocol: tcp
        FromPort: 11211
        ToPort: 11211
        CidrIp: 10.0.0.0/24
CacheCluster:
  Type: AWS::ElastiCache::CacheCluster
  Properties:
    Engine: memcached
    CacheNodeType: cache.t3.micro
    NumCacheNodes: '1'
    VpcSecurityGroupIds:
      - Fn::GetAtt: [SecurityGroup, GroupId]

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  SecurityGroup:
    Type: AWS::EC2::SecurityGroup
    Properties:
      GroupDescription: Example security group
      SecurityGroupIngress:
        - IpProtocol: tcp
          FromPort: 11211
          ToPort: 11211
          CidrIp: 10.0.0.0/24
  CacheCluster:
    Type: AWS::ElastiCache::CacheCluster
    Properties:
      Engine: memcached
      CacheNodeType: cache.t3.micro
      NumCacheNodes: '1'
      VpcSecurityGroupIds:
        - Fn::GetAtt: [SecurityGroup, GroupId]
[CT.ELASTICACHE.PR.7] Require an Amazon ElastiCache replication group of earlier Redis versions to have Redis AUTH activated

This control checks whether an Amazon ElastiCache replication group with an engine version earlier than 6.0 has Redis AUTH enabled.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElastiCache::ReplicationGroup
- **AWS CloudFormation guard rule:** [CT.ELASTICACHE.PR.7 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICACHE.PR.7 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.ELASTICACHE.PR.7 example templates](#)

**Explanation**

Redis authentication tokens, or passwords, enable Redis to require a password before allowing clients to run commands, thereby improving data security.

**Usage considerations**

- This control applies only to Amazon ElastiCache replication groups of Redis engine versions earlier than six (6).
- This control requires encryption-in-transit to be enabled on replication groups by means of the TransitEncryptionEnabled property.
Remediation for rule failure

Set the value of the AuthToken parameter to a string between 16 characters and 128 characters in length, which contains only printable ASCII characters and does not contain non-alphanumeric characters outside of the set (!, &,

The examples that follow show how to implement this remediation.

Amazon ElastiCache Replication Group - Example

An Amazon ElastiCache replication group configured with Redis AUTH authentication enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
    "ReplicationGroup": {
        "Type": "AWS::ElastiCache::ReplicationGroup",
        "Properties": {
            "ReplicationGroupDescription": "Sample replication group",
            "CacheNodeType": "cache.t3.micro",
            "SecurityGroupIds": [
                {
                    "Ref": "SecurityGroup"
                }
            ],
            "CacheSubnetGroupName": {
                "Ref": "SubnetGroup"
            },
            "NumCacheClusters": 2,
            "Engine": "redis",
            "EngineVersion": "5.0.6",
            "TransitEncryptionEnabled": true,
            "AuthToken": {
                "Fn::Sub": "{{resolve:secretsmanager:$\{ReplicationGroupSecret\}::password}}"
            }
        }
    }
}
```
**YAML example**

ReplicationGroup:
  Type: AWS::ElastiCache::ReplicationGroup
  Properties:
    ReplicationGroupDescription: Sample replication group
    CacheNodeType: cache.t3.micro
    SecurityGroupIds:
      - !Ref 'SecurityGroup'
    CacheSubnetGroupName: !Ref 'SubnetGroup'
    NumCacheClusters: 2
    Engine: redis
    EngineVersion: 5.0.6
    TransitEncryptionEnabled: true
    AuthToken: !Sub '{{resolve:secretsmanager:${ReplicationGroupSecret}::password}}'

**CT.ELASTICACHE.PR.7 rule specification**

```
# # # # # # # # # # # # # # # # # # # # # # # # # # # # #
##       Rule Specification        ##
# # # # # # # # # # # # # # # # # # # # # # # # # # # # #
#
# Rule Identifier:
#   elasticache_repl_grp_redis_auth_enabled_check
#
# Description:
#   This control checks whether an Amazon ElastiCache replication group with an engine
#   version earlier than 6.0 has Redis AUTH enabled.
#
# Reports on:
#   AWS::ElastiCache::ReplicationGroup
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
```
# Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any ElastiCache replication group
resources
#     Then: SKIP

# Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache replication group resource
#     And: 'Engine' has not been provided or has been provided and is not set to
'redis'
#     Then: SKIP

# Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache replication group resource
#     And: 'Engine' has been provided and is set to 'redis'
#     And: 'EngineVersion' has not been provided or has been provided and set to a
version greater than or equal to 6
#     Then: SKIP

# Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache replication group resource
#     And: 'Engine' has been provided and is set to 'redis'
#     And: 'EngineVersion' has been provided and set to a version less than 6
#     And: 'AuthToken' has not been provided or has been provided and set to an empty
string
#     Then: FAIL

# Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElastiCache replication group resource
#     And: 'Engine' has been provided and is set to 'redis'
#     And: 'EngineVersion' has been provided and set to a version less than 6
#     And: 'AuthToken' has been provided and set to a non-empty string
#     Then: PASS

# Constants
#
let ELASTICACHE_REPLICATION_GROUP_TYPE = "AWS::ElastiCache::ReplicationGroup"
let REDIS_ENGINE_TYPE = "redis"
let SUPPORTED_REDIS_ENGINE_VERSIONS_FOR_REDIS_AUTH = [ 
  /^2\./,   
  /^3\./,   
  /^4\./,   
  /^5\./  
]
let INPUT_DOCUMENT = this

#
# Assignments
#
let elasticache_replication_groups = Resources.*[ Type == 
  %ELASTICACHE_REPLICATION_GROUP_TYPE ]

#
# Primary Rules
#
rule elasticache_repl_grp_redis_auth_enabled_check when 
is_cfn_template(%INPUT_DOCUMENT) 
  %elasticache_replication_groups not empty {
    check(%elasticache_replication_groups.Properties) <<
      [CT.ELASTICACHE.PR.7]: Require an Amazon ElastiCache replication group of
      earlier Redis versions to have Redis AUTH activated
      [FIX]: Set the value of the 'AuthToken' parameter to a string between
      16 characters and 128 characters in length, which contains only printable ASCII
      characters and does not contain non-alphanumeric characters outside of the set (!, &,
    >>
  }
rule elasticache_repl_grp_redis_auth_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, 
  %ELASTICACHE_REPLICATION_GROUP_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTICACHE_REPLICATION_GROUP_TYPE.resourceProperties) <<
    [CT.ELASTICACHE.PR.7]: Require an Amazon ElastiCache replication group of
    earlier Redis versions to have Redis AUTH activated
    [FIX]: Set the value of the 'AuthToken' parameter to a string between
    16 characters and 128 characters in length, which contains only printable ASCII
    characters and does not contain non-alphanumeric characters outside of the set (!, &,
  >>
}

#
# Parameterized Rules

```
# Scenario 2
Engine exists
Engine == %REDIS_ENGINE_TYPE

# Scenario 3
EngineVersion exists
EngineVersion in %SUPPORTED_REDIS_ENGINE_VERSIONS_FOR_REDIS_AUTH

# Scenarios 4 and 5
AuthToken exists
check_is_string_and_not_empty(AuthToken)
```

# Utility Rules

```
# Utility Rules

rule is_cfn_template(doc) {
    %doc {  
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*/z/
    }
}
```
CT.ELASTICACHE.PR.7 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
  Subnet:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/16
      AvailabilityZone:
        Fn::Select:
        - 0
        - Fn::GetAZs: ''
  SecurityGroup:
    Type: AWS::EC2::SecurityGroup
    Properties:
      GroupDescription: Example security group
      VpcId:
        Ref: VPC
      SecurityGroupIngress:
        - FromPort: 443
          IpProtocol: tcp
          ToPort: 443
          CidrIp: 0.0.0.0/0
  SubnetGroup:
    Type: AWS::ElastiCache::SubnetGroup
    Properties:
      Description: Cache subnet group
      SubnetIds:
        - Ref: Subnet
  ReplicationGroupSecret:
    Type: AWS::SecretsManager::Secret
    Properties:
      Description: Replication group secret
```
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16

Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/16
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SecurityGroup:
    Type: AWS::EC2::SecurityGroup
    Properties:
        GroupDescription: Example security group
        VpcId:
            Ref: VPC
        SecurityGroupIngress:
            - FromPort: 443
              IpProtocol: tcp
              ToPort: 443
              CidrIp: 0.0.0.0/0
SubnetGroup:
    Type: AWS::ElastiCache::SubnetGroup
    Properties:
        Description: Cache subnet group
        SubnetIds:
            - Ref: Subnet
ReplicationGroup:
    Type: AWS::ElastiCache::ReplicationGroup
    Properties:
        ReplicationGroupDescription:
            Fn::Sub: ${AWS::StackName}-example
        CacheNodeType: cache.t3.micro
        SecurityGroupIds:
            - Ref: SecurityGroup
        CacheSubnetGroupName:
            Ref: SubnetGroup
        NumCacheClusters: 2
        Engine: redis
        EngineVersion: 3.2.6
        TransitEncryptionEnabled: true

[CT.ELASTICACHE.PR.8] Require an Amazon ElastiCache replication group of later Redis versions to have RBAC authentication activated

This control checks whether Amazon ElastiCache replication groups with an engine version greater than or equal to 6.0 have RBAC authentication enabled.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
• **Control behavior:** Proactive

• **Resource types:** AWS::ElastiCache::ReplicationGroup

• **AWS CloudFormation guard rule:** [CT.ELASTICACHE.PR.8 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICACHE.PR.8 rule specification](#)

• For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.ELASTICACHE.PR.8 example templates](#)

**Explanation**

Role-Based Access Control (RBAC) helps you create users and assign specific permissions to them, by using an access string. You assign the users to user groups aligned with a specific role, such as administrators, or human resources. The roles are deployed to Amazon ElastiCache for Redis replication groups. This technique establishes security boundaries between clients using the same Redis replication groups, and it prevents clients from having access to other clients' data. If you use RBAC authentication over Redis AUTH, it reduces the number of credentials required for authenticated access to an Amazon ElastiCache replication group.

**Usage considerations**

- This control applies only to Amazon ElastiCache replication groups of Redis engine versions greater than or equal to 6.0
- This control requires encryption in transit to be enabled on replication groups by means of the TransitEncryptionEnabled property

**Remediation for rule failure**

Set the value of the UserGroupIds property to a list that contains at least one Amazon ElastiCache user group identifier.

The examples that follow show how to implement this remediation.
Amazon ElastiCache Replication Group - Example

An Amazon ElastiCache replication group configured with RBAC authentication enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ReplicationGroup": {
        "Type": "AWS::ElastiCache::ReplicationGroup",
        "Properties": {
            "ReplicationGroupDescription": "Sample replication group",
            "CacheNodeType": "cache.t3.micro",
            "SecurityGroupIds": [
                {
                    "Ref": "SecurityGroup"
                }
            ],
            "CacheSubnetGroupName": {
                "Ref": "SubnetGroup"
            },
            "NumCacheClusters": 2,
            "Engine": "redis",
            "EngineVersion": 6.2,
            "TransitEncryptionEnabled": true,
            "UserGroupIds": [
                {
                    "Ref": "UserGroup"
                }
            ]
        }
    }
}
```

**YAML example**

```
ReplicationGroup:
  Type: AWS::ElastiCache::ReplicationGroup
  Properties:
    ReplicationGroupDescription: Sample replication group
```

Proactive controls
CacheNodeType: cache.t3.micro
SecurityGroupIds:
  - !Ref 'SecurityGroup'
CacheSubnetGroupName: !Ref 'SubnetGroup'
NumCacheClusters: 2
Engine: redis
EngineVersion: 6.2
TransitEncryptionEnabled: true
UserGroupIds:
  - !Ref 'UserGroup'

**CT.ELASTICACHE.PR.8 rule specification**

```plaintext
# #########################################################
##       Rule Specification        ##
#########################################################
#
# Rule Identifier:
#   elasticache_repl_grp_rbac_auth_enabled_check
#
# Description:
#   This control checks whether Amazon ElastiCache replication groups with an engine
#   version greater than or equal to 6.0 have RBAC authentication enabled.
#
# Reports on:
#   AWS::ElastiCache::ReplicationGroup
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
#     And: The input document does not contain any Amazon ElastiCache replication
#     group resources
#   Then: SKIP
```
# Scenario: 2
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an Amazon ElastiCache replication group
#   resource
#   And: 'Engine' has not been provided or has been provided and is not set to
#       'redis'
#   Then: SKIP
# Scenario: 3
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an Amazon ElastiCache replication group
#   resource
#   And: 'Engine' has been provided and is set to 'redis'
#   And: 'EngineVersion' has been provided and set to a version less than 6
#   Then: SKIP
# Scenario: 4
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an Amazon ElastiCache replication group
#   resource
#   And: 'Engine' has been provided and set to 'redis'
#   And: 'EngineVersion' has not been provided or has been provided and set to a
#       version greater than or equal to 6
#   And: 'UserGroupIds' has not been provided or has been provided as an empty list
#       or a list containing an empty
#       string or invalid local reference
#   Then: FAIL
# Scenario: 5
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an Amazon ElastiCache replication group
#   resource
#   And: 'Engine' has been provided and set to 'redis'
#   And: 'EngineVersion' has not been provided or has been provided and set to a
#       version greater than or equal to 6
#   And: 'UserGroupIds' has been provided as a list containing non-empty strings or
#       valid local references
#   Then: PASS

# Constants
#
let ELASTICACHE_REPLICATION_GROUP_TYPE = "AWS::ElastiCache::ReplicationGroup"
let REDIS_ENGINE_TYPE = "redis"
let UNSUPPORTED_REDIS_ENGINE_VERSIONS_FOR_RBAC = [
   /^2\./,
   /^3\./,
   /^4\./,
   /^5\./
]
let INPUT_DOCUMENT = this

# # Assignments #
let elasticache_replication_groups = Resources.*[ Type ==
   %ELASTICACHE_REPLICATION_GROUP_TYPE ]

# # Primary Rules #
rule elasticache_repl_grp_rbac_auth_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
   %elasticache_replication_groups
   not empty {
      check(%elasticache_replication_groups.Properties)
      <<
      [CT.ELASTICACHE.PR.8]: Require an Amazon ElastiCache replication group of later
      Redis versions to have RBAC authentication activated
      [FIX]: Set the value of the UserGroupIds property to a list that contains at
      least one Amazon ElastiCache user group identifier.
      >>
   }
rule elasticache_repl_grp_rbac_auth_enabled_check when is_cfn_hook(%INPUT_DOCUMENT,
   %ELASTICACHE_REPLICATION_GROUP_TYPE) {
   check(%INPUT_DOCUMENT.%ELASTICACHE_REPLICATION_GROUP_TYPE.resourceProperties)
   <<
   [CT.ELASTICACHE.PR.8]: Require an Amazon ElastiCache replication group of later
   Redis versions to have RBAC authentication activated
   [FIX]: Set the value of the UserGroupIds property to a list that contains at
   least one Amazon ElastiCache user group identifier.
   >>
}

# # Parameterized Rules #

Proactive controls
AWS Control Tower

User Guide

rule check(elasticache_replication_group) {
%elasticache_replication_group [
# Scenario 2
Engine exists
Engine == %REDIS_ENGINE_TYPE
# Scenario 3
EngineVersion not exists or
EngineVersion not in %UNSUPPORTED_REDIS_ENGINE_VERSIONS_FOR_RBAC
] {
# Scenarios 4, 5 and 6
UserGroupIds exists
UserGroupIds is_list
UserGroupIds not empty
UserGroupIds[*] {
check_is_string_and_not_empty(this) or
check_local_references(%INPUT_DOCUMENT, this,
"AWS::ElastiCache::UserGroup")
}
}
}
#
# Utility Rules
#
rule is_cfn_template(doc) {
%doc {
AWSTemplateFormatVersion exists
Resources exists
}
}

or

rule is_cfn_hook(doc, RESOURCE_TYPE) {
%doc.%RESOURCE_TYPE.resourceProperties exists
}
rule check_is_string_and_not_empty(value) {
%value {
this is_string
this != /\A\s*\z/
}
}

Proactive controls

1138


CT.ELASTICACHE.PR.8 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16

Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/16
    AvailabilityZone:
      Fn::Select:
        - 0
- Fn::GetAZs: ''

SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: test
    VpcId:
      Ref: VPC
  SecurityGroupIngress:
    - FromPort: 443
      IpProtocol: tcp
      ToPort: 443
      CidrIp: 0.0.0.0/0

SubnetGroup:
  Type: AWS::ElastiCache::SubnetGroup
  Properties:
    Description: Cache Subnet Group
    SubnetIds:
      - Ref: Subnet

UserGroup:
  Type: AWS::ElastiCache::UserGroup
  Properties:
    Engine: redis
    UserGroupId:
      Fn::Sub: ${AWS::StackName}-example-group
    UserIds:
      - default

ReplicationGroup:
  Type: AWS::ElastiCache::ReplicationGroup
  Properties:
    ReplicationGroupDescription:
      Fn::Sub: ${AWS::StackName}-example
    CacheNodeType: cache.t3.micro
    SecurityGroupIds:
      - Ref: SecurityGroup
    CacheSubnetGroupName:
      Ref: SubnetGroup
    NumCacheClusters: 2
    Engine: redis
    UserGroupIds:
      - Ref: UserGroup
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/16
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: test
    VpcId:
      Ref: VPC
    SecurityGroupIngress:
      - FromPort: 443
        IpProtocol: tcp
        ToPort: 443
        CidrIp: 0.0.0.0/0
SubnetGroup:
  Type: AWS::ElastiCache::SubnetGroup
  Properties:
    Description: Cache Subnet Group
    SubnetIds:
      - Ref: Subnet
ReplicationGroup:
  Type: AWS::ElastiCache::ReplicationGroup
  Properties:
    ReplicationGroupDescription:
      Fn::Sub: ${AWS::StackName}-example
    CacheNodeType: cache.t3.micro
    SecurityGroupIds:
Amazon Elastic Container Registry controls

Topics

- [CT.ECR.PR.1] Require Amazon ECR repositories to have a lifecycle policy configured
- [CT.ECR.PR.2] Require Amazon ECR private repositories to have image scanning enabled
- [CT.ECR.PR.3] Require Amazon ECR private repositories to have tag immutability enabled

[CT.ECR.PR.1] Require Amazon ECR repositories to have a lifecycle policy configured

This control checks whether a private Amazon Elastic Container Registry (Amazon ECR) repository has at least one lifecycle policy configured.

- **Control objective:** Manage vulnerabilities, Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECR::Repository
- **AWS CloudFormation guard rule:** [CT.ECR.PR.1 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECR.PR.1 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECR.PR.1 example templates](#)

Explanation

Amazon ECR lifecycle policies specify the lifecycle management of images in a repository. By configuring lifecycle policies, you can automate the cleanup of unused images and the expiration...
of images, based on age or count. Automating these tasks can help you to avoid unintentionally using outdated images in your repository.

**Remediation for rule failure**

Provide a LifecyclePolicy configuration and set LifecyclePolicyText to an Amazon ECR repository lifecycle policy.

The examples that follow show how to implement this remediation.

**Amazon ECR Repository - Example**

Amazon ECR repository configured with a lifecycle policy. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "ECRRepository": {
    "Type": "AWS::ECR::Repository",
    "Properties": {
      "LifecyclePolicy": {
        "LifecyclePolicyText": "{\n          "rules": [\n            {\n              "rulePriority": 1,
              "description": "Expire images older than 14 days",
              "selection": {
                "tagStatus": "untagged",
                "countType": "sinceImagePushed",
                "countUnit": "days",
                "countNumber": 14
              },
              "action": {
                "type": "expire"
              }
            }
          ]\n        }\n      }
    }
  }
}
```

**YAML example**

```yaml
ECRRepository:
  Type: AWS::ECR::Repository
  Properties:
    LifecyclePolicy:
      LifecyclePolicyText: |
        {\n          "rules": [\n            {\n              "rulePriority": 1,
              "description": "Expire images older than 14 days",
              "selection": {
                "tagStatus": "untagged",
                "countType": "sinceImagePushed",
                "countUnit": "days",
                "countNumber": 14
              }
            }\n          ]\n        }
```
"rules": [
    {
        "rulePriority": 1,
        "description": "Expire images older than 14 days",
        "selection": {
            "tagStatus": "untagged",
            "countType": "sinceImagePushed",
            "countUnit": "days",
            "countNumber": 14
        },
        "action": {
            "type": "expire"
        }
    }
]

CT.ECR.PR.1 rule specification

# ###################################
##       Rule Specification        ##
#####################################
#
# Rule Identifier:
#    ecr_private_lifecycle_policy_configured_check
#
# Description:
#   This control checks whether a private Amazon Elastic Container Registry (ECR) repository has at least one lifecycle policy configured.
#
# Reports on:
#    AWS::ECR::Repository
#
# Evaluates:
#    AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#    None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any ECR repository resources
# Then: SKIP

# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an ECR repository resource
# And: 'LifecyclePolicy' is not present
# Then: FAIL

# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an ECR repository resource
# And: 'LifecyclePolicy' is present
# And: 'LifecyclePolicyText' has not been provided in the 'LifecyclePolicy'
configuration or has been provided as
# an empty string
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an ECR repository resource
# And: 'LifecyclePolicy' is present
# And: 'LifecyclePolicyText' has been provided in the 'LifecyclePolicy'
configuration with a non-empty string
# Then: PASS

# Constants
#
let ECR_REPOSITORY_TYPE = "AWS::ECR::Repository"
let INPUT_DOCUMENT = this

# Assignments
#
let ecr_repositories = Resources.*[ Type == %ECR_REPOSITORY_TYPE ]
Proactive controls
rule ecr_private_lifecycle_policy_configured_check when is_cfn_template(%INPUT_DOCUMENT)
  %ecr_repositories not empty {
    check(%ecr_repositories.Properties)
    <<
    [CT.ECR.PR.1]: Require Amazon ECR repositories to have a lifecycle policy configured
    [FIX]: Provide a 'LifecyclePolicy' configuration and set 'LifecyclePolicyText' to an Amazon ECR repository lifecycle policy.
    >>
  }

rule ecr_private_lifecycle_policy_configured_check when is_cfn_hook(%INPUT_DOCUMENT, %ECR_REPOSITORY_TYPE) {
  check(%INPUT_DOCUMENT.%ECR_REPOSITORY_TYPE.resourceProperties)
  <<
  [CT.ECR.PR.1]: Require Amazon ECR repositories to have a lifecycle policy configured
  [FIX]: Provide a 'LifecyclePolicy' configuration and set 'LifecyclePolicyText' to an Amazon ECR repository lifecycle policy.
  >>
}

# Parameterized Rules
#
rule check(ecr_repository) {
  %ecr_repository {
    #Scenario 3
    LifecyclePolicy exists
    LifecyclePolicy is_struct
    LifecyclePolicy {
      #Scenario 4
      LifecyclePolicyText exists
      check_is_string_and_not_empty(LifecyclePolicyText)
    }
  }
}

# Utility Rules
#
rule check_is_string_and_not_empty(value) {
  %value {
CT.ECR.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
ECRRepository:
  Type: AWS::ECR::Repository
  Properties:
    LifecyclePolicy:
      LifecyclePolicyText: |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
      |
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ECRRepository:
  Type: AWS::ECR::Repository
  Properties: {}  

[CT.ECR.PR.2] Require Amazon ECR private repositories to have image scanning enabled

This control checks whether a private Amazon Elastic Container Registry (Amazon ECR) repository has image scanning enabled.

- **Control objective:** Manage vulnerabilities
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECR::Repository
- **AWS CloudFormation guard rule:** [CT.ECR.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECR.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECR.PR.2 example templates](#)

**Explanation**
Amazon ECR image scanning helps with identifying software vulnerabilities in your container images. Amazon ECR uses the Common Vulnerabilities and Exposures (CVEs) database from the open-source Clair project, and it provides a list of scan findings. Enabling image scanning on Amazon ECR repositories adds a layer of verification regarding the integrity and safety of the images being stored.

**Remediation for rule failure**

Set `ScanOnPush` in `ImageScanningConfiguration` to `true`.

The examples that follow show how to implement this remediation.

**Amazon ECR Repository - Example**

Amazon ECR repository with image scanning enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ECRRepository": {
      "Type": "AWS::ECR::Repository",
      "Properties": {
         "ImageScanningConfiguration": {
            "ScanOnPush": true
         }
      }
   }
}
```

**YAML example**

```yaml
ECRRepository:
   Type: AWS::ECR::Repository
   Properties:
      ImageScanningConfiguration:
         ScanOnPush: true
```
CT.ECR.PR.2 rule specification

# #####################################################################
##       Rule Specification       ##
#####################################################################

# Rule Identifier:
#  ecr_private_image_scanning_enabled_check
#
# Description:
#  This control checks whether a private Amazon Elastic Container Registry (Amazon
#  ECR) repository has image scanning enabled.
#
# Reports on:
#  AWS::ECR::Repository
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#  None
#
# Scenarios:
#  Scenario: 1
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#           document
#    And: The input document does not contain any Amazon ECR repository resources
#    Then: SKIP
#  Scenario: 2
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#           document
#    And: The input document contains an Amazon ECR repository resource
#    And: 'ImageScanningConfiguration.ScanOnPush' has not been provided
#    Then: FAIL
#  Scenario: 3
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#           document
#    And: The input document contains an Amazon ECR repository resource
#    And: 'ImageScanningConfiguration.ScanOnPush' has been provided and set to a
#         value other than bool(true)
#    Then: FAIL
#  Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon ECR repository resource
# And: 'ImageScanningConfiguration.ScanOnPush' has been provided and set to bool(true)
# Then: PASS

# Constants
#
let ECR_REPOSITORY_TYPE = "AWS::ECR::Repository"
let INPUT_DOCUMENT = this

# Assignments
#
let ecr_repositories = Resources.*[ Type == %ECR_REPOSITORY_TYPE ]

#
# Primary Rules
#
rule ecr_private_image_scanning_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
  ecr_repositories not empty {
    check(%ecr_repositories.Properties)
    ecr_repositories not empty {
      <<
        [CT.ECR.PR.2]: Require Amazon ECR private repositories to have image scanning enabled
        [FIX]: Set 'ScanOnPush' in 'ImageScanningConfiguration' to 'true'.
      >>
    }
  }

rule ecr_private_image_scanning_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ECR_REPOSITORY_TYPE) {
  check(%INPUT_DOCUMENT.%ECR_REPOSITORY_TYPE.resourceProperties)
  ecr_repositories not empty {
    <<
      [CT.ECR.PR.2]: Require Amazon ECR private repositories to have image scanning enabled
      [FIX]: Set 'ScanOnPush' in 'ImageScanningConfiguration' to 'true'.
    >>
  }
}

#
# Parameterized Rules
#
rule check(ecr_repository) {
  %ecr_repository {
    # Scenario 2
    ImageScanningConfiguration exists
    ImageScanningConfiguration is_struct

    ImageScanningConfiguration {
      # Scenario 3 and 4
      ScanOnPush exists
      ScanOnPush == true
    }
  }
} # Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ECR.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
ECRRepository:
  Type: AWS::ECR::Repository
Properties:
  ImageScanningConfiguration:
    ScanOnPush: true
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ECRRepository:
   Type: AWS::ECR::Repository
Properties:
   ImageScanningConfiguration:
      ScanOnPush: false

[CT.ECR.PR.3] Require Amazon ECR private repositories to have tag immutability enabled

This control checks whether a private Amazon Elastic Container Registry (Amazon ECR) repository has tag immutability enabled.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECR::Repository
- **AWS CloudFormation guard rule:** [CT.ECR.PR.3 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECR.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECR.PR.3 example templates](#)

Explanation

Amazon ECR tag immutability enables customers to rely on the descriptive tags of an image as a reliable mechanism that tracks and uniquely identifies images. An immutable tag is static, which
means that each tag refers to a unique image. This tagging improves reliability and scalability, because the use of a static tag always results in the same image being deployed. When configured, tag immutability prevents the tags from being overridden, which reduces the attack surface.

**Remediation for rule failure**

Set ImageTagMutability to IMMUTABLE.

The examples that follow show how to implement this remediation.

**Amazon ECR Repository - Example**

Amazon ECR repository configured with immutable tags. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ECRRepository": {
      "Type": "AWS::ECR::Repository",
      "Properties": {
         "ImageTagMutability": "IMMUTABLE"
      }
   }
}
```

**YAML example**

```yaml
ECRRepository:
   Type: AWS::ECR::Repository
   Properties:
      ImageTagMutability: IMMUTABLE
```

**CT.ECR.PR.3 rule specification**

```
# ###################################
##       Rule Specification        ##
```

Proactive controls
# Rule Identifier:
#   ecr_private_tag_immutability_enabled_check
#
# Description:
#   This control checks whether a private Amazon Elastic Container Registry (Amazon ECR) repository has tag immutability enabled.
#
# Reports on:
#   AWS::ECR::Repository
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#         And: The input document does not contain any ECR repository resources
#         Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#         And: The input document contains an ECR repository resource
#         And: 'ImageTagMutability' has not been provided
#         Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#         And: The input document contains an ECR repository resource
#         And: 'ImageTagMutability' has been provided with a value of 'MUTABLE'
#         Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#         And: The input document contains an ECR repository resource
#         And: 'ImageTagMutability' has been provided with a value of 'IMMUTABLE'
#         Then: PASS
# Constants
#
let ECR_REPOSITORY_TYPE = "AWS::ECR::Repository"
let INPUT_DOCUMENT = this
#
# Assignments
#
let ecr_repositories = Resources.*[ Type == %ECR_REPOSITORY_TYPE ]
#
# Primary Rules
#
rule ecr_private_tag_immutability_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%ecr_repositories not empty {
  check(%ecr_repositories.Properties)
  <<
  [CT.ECR.PR.3]: Require Amazon ECR private repositories to have tag immutability enabled
  [FIX]: Set 'ImageTagMutability' to 'IMMUTABLE'.
  >>
}

rule ecr_private_tag_immutability_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ECR_REPOSITORY_TYPE) {
  check(%INPUTDOCUMENT.%ECR_REPOSITORY_TYPE.resourceProperties)
  <<
  [CT.ECR.PR.3]: Require Amazon ECR private repositories to have tag immutability enabled
  [FIX]: Set 'ImageTagMutability' to 'IMMUTABLE'.
  >>
}
#
# Parameterized Rules
#
rule check(ecr_repository) {
  %ecr_repository {
    # Scenario 2, 3 and 4
    ImageTagMutability exists
    ImageTagMutability == "IMMUTABLE"
  }
}
# Utility Rules

## rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

## rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

### CT.ECR.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

```
Resources:
    ECRRepository:
        Type: AWS::ECR::Repository
        Properties:
            ImageTagMutability: IMMUTABLE
```

**FAIL Example** - Use this template to verify that the control prevents non-compliant resource creation.

```
Resources:
    ECRRepository:
        Type: AWS::ECR::Repository
        Properties:
            ImageTagMutability: MUTABLE
```
Amazon Elastic Container Service controls

Topics

- [CT.ECS.PR.1] Require Amazon ECS Fargate Services to run on the latest Fargate platform version
- [CT.ECS.PR.2] Require any Amazon ECS cluster to have container insights activated
- [CT.ECS.PR.3] Require any Amazon ECS task definition to specify a user that is not the root
- [CT.ECS.PR.4] Require Amazon ECS tasks to use 'awsvpc' networking mode
- [CT.ECS.PR.5] Require an active Amazon ECS task definition to have a logging configuration
- [CT.ECS.PR.6] Require Amazon ECS containers to allow read-only access to the root filesystem
- [CT.ECS.PR.7] Require an Amazon ECS task definition to have a specific memory usage limit
- [CT.ECS.PR.8] Require Amazon ECS task definitions to have secure networking modes and user definitions
- [CT.ECS.PR.9] Require Amazon ECS services not to assign public IP addresses automatically
- [CT.ECS.PR.10] Require that Amazon ECS task definitions do not share the host's process namespace
- [CT.ECS.PR.11] Require an Amazon ECS container to run as non-privileged
- [CT.ECS.PR.12] Require that Amazon ECS task definitions do not pass secrets as container environment variables

[CT.ECS.PR.1] Require Amazon ECS Fargate Services to run on the latest Fargate platform version

This control checks whether Amazon Elastic Container Service (Amazon ECS) Fargate services are configured to deploy using the LATEST platform version rather than a specified version number.

- **Control objective:** Manage vulnerabilities
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECS::Service
- **AWS CloudFormation guard rule:** [CT.ECS.PR.1 rule specification](https://aws.amazon.com/documentation/cloudformation/guides/security/)
For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the:
CT.ECS.PR.1 rule specification

For examples of PASS and FAIL CloudFormation Templates related to this control, see:
CT.ECS.PR.1 example templates

Explanation

AWS Fargate platform versions refer to a specific runtime environment for Fargate task infrastructure, which is a combination of kernel and container runtime versions. New platform versions are released as the runtime environment evolves. For example, a new version may be released for kernel or operating system updates, new features, bug fixes, or security updates. Security updates and patches are deployed automatically for your Fargate tasks. If a security issue is found that affects a platform version, AWS patches the platform version.

Usage considerations

- This control only applies to Amazon ECS services with a LaunchType of FARGATE

Remediation for rule failure

When LaunchType is set to FARGATE, set the PlatformVersion property to LATEST or omit the PlatformVersion property (default: LATEST).

The examples that follow show how to implement this remediation.

Amazon ECS Service - Example One

Amazon ECS service configured to deploy using the LATEST platform version by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.

JSON example

```json
{
    "ECSService": {
        "Type": "AWS::ECS::Service",
        "Properties": {
            "Cluster": {
```
YAML example

ECSService:
  Type: AWS::ECS::Service
  Properties:
    Cluster: !Ref 'ECSCluster'
    DesiredCount: 1
    TaskDefinition: !Ref 'ECSTaskDefinition'
    NetworkConfiguration:
      AwsvpcConfiguration:
        AssignPublicIp: DISABLED
        Subnets: [
          - !Ref 'SubnetOne'
          - !Ref 'SubnetTwo'
        ]
    LaunchType: FARGATE
The examples that follow show how to implement this remediation.

**Amazon ECS Service - Example Two**

Amazon ECS service configured to deploy using the LATEST platform version by means of the `PlatformVersion` property. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ECSService": {
      "Type": "AWS::ECS::Service",
      "Properties": {
         "Cluster": {
            "Ref": "ECSCluster"
         },
         "DesiredCount": 1,
         "TaskDefinition": {
            "Ref": "ECSTaskDefinition"
         },
         "NetworkConfiguration": {
            "AwsvpcConfiguration": {
               "AssignPublicIp": "DISABLED",
               "Subnets": [
                  {
                     "Ref": "SubnetOne"
                  },
                  {
                     "Ref": "SubnetTwo"
                  }
               ]
            },
            "LaunchType": "FARGATE",
            "PlatformVersion": "LATEST"
         }
      }
   }
}
```

**YAML example**

```yaml
Proactive controls
```

1161
ECSService:
  Type: AWS::ECS::Service
  Properties:
    Cluster: !Ref 'ECSCluster'
    DesiredCount: 1
    TaskDefinition: !Ref 'ECSTaskDefinition'
  NetworkConfiguration:
    AwsvpcConfiguration:
      AssignPublicIp: DISABLED
      Subnets:
        - !Ref 'SubnetOne'
        - !Ref 'SubnetTwo'
    LaunchType: FARGATE
    PlatformVersion: LATEST

CT.ECS.PR.1 rule specification

# ###################################################################
# Rule Specification     #
# ###################################################################
#
# Rule Identifier:       #
#  ecs_fargate_latest_platform_version_check
#
# Description:          #
#  This control checks whether Amazon Elastic Container Service (Amazon ECS) Fargate services are configured to deploy using the 'LATEST' platform version rather than a specified version number.
#
# Reports on:           #
#  AWS::ECS::Service
#
# Evaluates:            #
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:      #
#  None
#
# Scenarios:            #
# Scenario: 1
# Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
# And: The input document does not contain an Amazon ECS service resource
# Then: SKIP

# Scenario: 2
# Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
# And: The input document contains an Amazon ECS service resource
# And: 'LaunchType' is not present
# Then: SKIP

# Scenario: 3
# Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
# And: The input document contains an Amazon ECS service resource
# And: 'LaunchType' is present and not set to 'FARGATE'
# Then: SKIP

# Scenario: 4
# Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
# And: The input document contains an Amazon ECS service resource
# And: 'LaunchType' is present and set to 'FARGATE'
# And: 'PlatformVersion' is present and not set to 'LATEST'
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
# And: The input document contains an Amazon ECS service resource
# And: 'LaunchType' is present and set to 'FARGATE'
# And: 'PlatformVersion' is not present
# Then: PASS

# Scenario: 6
# Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
# And: The input document contains an Amazon ECS service resource
# And: 'LaunchType' is present and set to 'FARGATE'
# And: 'PlatformVersion' is set to 'LATEST'
# Then: PASS

# Constants
#
let ECS_SERVICE_TYPE = "AWS::ECS::Service"
let INPUT_DOCUMENT = this
## Assignments

let ecs_services = Resources.*[ Type == %ECS_SERVICE_TYPE ]

## Primary Rules

rule ecs_fargate_latest_platform_version_check when is_cfn_template(%INPUT_DOCUMENT) %ecs_services not empty {
    check(%ecs_services.Properties)
    <<
    [CT.ECS.PR.1]: Require Amazon ECS Fargate Services to run on the latest Fargate platform version
    [FIX]: When 'LaunchType' is set to 'FARGATE', set the 'PlatformVersion' property to 'LATEST' or omit the 'PlatformVersion' property (default: 'LATEST').
    >>
}

rule ecs_fargate_latest_platform_version_check when is_cfn_hook(%INPUT_DOCUMENT, %ECS_SERVICE_TYPE) {
    check(%INPUT_DOCUMENT.%ECS_SERVICE_TYPE.resourceProperties)
    <<
    [CT.ECS.PR.1]: Require Amazon ECS Fargate Services to run on the latest Fargate platform version
    [FIX]: When 'LaunchType' is set to 'FARGATE', set the 'PlatformVersion' property to 'LATEST' or omit the 'PlatformVersion' property (default: 'LATEST').
    >>
}

## Parameterized Rules

rule check(ecs_service) {
    %ecs_service [ filter_launch_type_is_fargate(this) ]{
        # Scenario 5
        PlatformVersion not exists or

        # Scenario 4 and 6
        check_fargate_version_latest(PlatformVersion)
    }
}
rule filter_launch_type_is_fargate(ecs_service) {
  %ecs_service {
    # Scenario 2
    LaunchType exists
    LaunchType is_string

    # Scenario 3
    LaunchType == "FARGATE"
  }
}

rule check_fargate_version_latest(property) {
  %property {
    this is_string
    this == "LATEST"
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

**CT.ECS.PR.1 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

**Resources:**

- **VPC:**
Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsSupport: 'true'
  EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
ECSCluster:
  Type: AWS::ECS::Cluster
  Properties:
    CapacityProviders:
      - FARGATE
ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    ContainerDefinitions:
      - Essential: true
        Image: nginx:latest
        Name: SampleContainer
        Memory: '512'
        RequiresCompatibilities:
          - FARGATE
        NetworkMode: awsvpc
        Cpu: 256
ECSService:
  Type: AWS::ECS::Service
Properties:
  Cluster:
    Ref: ECSCluster
  DesiredCount: 0
  TaskDefinition:
    Ref: ECSTaskDefinition
  NetworkConfiguration:
    AwsvpcConfiguration:
      AssignPublicIp: DISABLED
      Subnets:
        - Ref: SubnetOne
        - Ref: SubnetTwo
  LaunchType: FARGATE

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  SubnetOne:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
      AvailabilityZone:
        Fn::Select:
          - 0
          - Fn::GetAZs: ''
  SubnetTwo:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.1.0/24
AvailabilityZone:
  Fn::Select:
  - 1
  - Fn::GetAZs: ''

ECSCluster:
  Type: AWS::ECS::Cluster
  Properties:
    CapacityProviders:
    - FARGATE

ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    ContainerDefinitions:
    - Essential: true
      Image: nginx:latest
      Name: SampleContainer
      Memory: '512'
    RequiresCompatibilities:
    - FARGATE
    NetworkMode: awsvpc
    Cpu: 256

ECSService:
  Type: AWS::ECS::Service
  Properties:
    Cluster:
      Ref: ECSCluster
    DesiredCount: 0
    TaskDefinition:
      Ref: ECSTaskDefinition
    NetworkConfiguration:
      AwsvpcConfiguration:
        AssignPublicIp: DISABLED
        Subnets:
        - Ref: SubnetOne
        - Ref: SubnetTwo
    LaunchType: FARGATE
    PlatformVersion: 1.4.0
[CT.ECS.PR.2] Require any Amazon ECS cluster to have container insights activated

This control checks whether your Amazon Elastic Container Service (Amazon ECS) clusters have container insights enabled.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECS::Cluster
- **AWS CloudFormation guard rule:** [CT.ECS.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECS.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECS.PR.2 example templates](#)

**Explanation**

Monitoring is an important part of maintaining the reliability, availability, and performance of Amazon ECS clusters. Use CloudWatch container insights to collect, aggregate, and summarize metrics and logs from your containerized applications and microservices. CloudWatch automatically collects metrics for many resources, such as CPU, memory, disk, and network. The container insights capability also provides diagnostic information, such as container restart failures, which helps you isolate issues and resolve them quickly. You can set CloudWatch alarms on the metrics that container insights collects.

**Remediation for rule failure**

Enable container insights on Amazon ECS clusters with an entry in `ClusterSettings` that has `Name` set to `containerInsights` and `Value` set to `enabled`.

The examples that follow show how to implement this remediation.

**Amazon ECS Cluster - Example**

Amazon ECS cluster configured with container insights enabled. The example is shown in JSON and in YAML.
JSON example

```
{
    "ECSCluster": {
        "Type": "AWS::ECS::Cluster",
        "Properties": {
            "ClusterSettings": [
                {
                    "Name": "containerInsights",
                    "Value": "enabled"
                }
            ]
        }
    }
}
```

YAML example

```
ECSCluster:
    Type: AWS::ECS::Cluster
    Properties:
        ClusterSettings:
            - Name: containerInsights
              Value: enabled
```

**CT.ECS.PR.2 rule specification**

```
# ####################################################################
##       Rule Specification        
# ####################################################################
#
# Rule Identifier:
#     ecs_container_insights_enabled_check
#
# Description:
#     This control checks whether your Amazon Elastic Container Service (Amazon ECS) clusters have container insights enabled.
```

Proactive controls

1170
# Reports on:
#   AWS::ECS::Cluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#            And: The input document does not contain an Amazon ECS cluster resource
#            Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#            And: The input document contains an Amazon ECS cluster resource
#            And: 'ClusterSettings' property is not present or is an empty list
#            Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#            And: The input document contains an Amazon ECS cluster resource
#            And: 'ClusterSettings' property is present
#            And: An entry with 'Name' set to 'containerInsights' is not present in
#                  'ClusterSettings'
#            Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#            And: The input document contains an Amazon ECS cluster resource
#            And: 'ClusterSettings' property is present
#            And: An entry with 'Name' set to 'containerInsights' is present in
#                  'ClusterSettings' with a 'Value' not set
#                  to 'enabled'
#            Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#            And: The input document contains an Amazon ECS cluster resource
#            And: 'ClusterSettings' property is present
And: An entry with 'Name' set to 'containerInsights' is present in 'ClusterSettings' with a 'Value' set to 'enabled'

Then: PASS

# Constants
#
let ECS_CLUSTER_TYPE = "AWS::ECS::Cluster"
let INPUT_DOCUMENT = this

# Assignments
#
let ecs_clusters = Resources.*[ Type == %ECS_CLUSTER_TYPE ]

# Primary Rules
#
rule ecs_container_insights_enabled_check when is_cfn_template(%INPUT_DOCUMENT) {
    check(%ecs_clusters.Properties) when %ecs_clusters not empty {
        [CT.ECS.PR.2]: Require any Amazon ECS cluster to have container insights activated
        [FIX]: Enable container insights on Amazon ECS clusters with an entry in 'ClusterSettings' that has 'Name' set to 'containerInsights' and 'Value' set to 'enabled'.

    }
}

rule ecs_container_insights_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ECS_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%ECS_CLUSTER_TYPE.resourceProperties) when %INPUT_DOCUMENT.%ECS_CLUSTER_TYPE.resourceProperties not empty {
        [CT.ECS.PR.2]: Require any Amazon ECS cluster to have container insights activated
        [FIX]: Enable container insights on Amazon ECS clusters with an entry in 'ClusterSettings' that has 'Name' set to 'containerInsights' and 'Value' set to 'enabled'.

    }
}

#
# Parameterized Rules

```
# Scenario 2
ClusterSettings exists
ClusterSettings is_list
ClusterSettings not empty

# Scenario 3, 4 and 5
some ClusterSettings[*] {
    Name exists
    Value exists
    Name is_string
    Value is_string
    Name == "containerInsights"
    Value == "enabled"
}
```

# Utility Rules

```
# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

CT.ECS.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.
PASS Example - Use this template to verify a compliant resource creation.

Resources:
ECSCluster:
   Type: AWS::ECS::Cluster
   Properties:
      ClusterSettings:
         - Name: containerInsights
           Value: enabled

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ECSCluster:
   Type: AWS::ECS::Cluster
   Properties:
      ClusterSettings:
         - Name: containerInsights
           Value: disabled

[CT.ECS.PR.3] Require any Amazon ECS task definition to specify a user that is not the root user.

This control checks whether Amazon Elastic Container Service (ECS) task definitions run as a non-root user within Amazon ECS containers.

- **Control objective:** Enforce least privilege, Manage vulnerabilities
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECS::TaskDefinition
- **AWS CloudFormation guard rule:** [CT.ECS.PR.3 rule specification](#)

Details and examples
• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.ECS.PR.3 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.ECS.PR.3 example templates

Explanation

It is a best practice to run containers as a non-root user. By default, containers run as the root user, unless the User directive is included in your Dockerfile. The default Linux capabilities that are assigned by Docker restrict the actions that can be run as the root user, but only marginally. For example, a container running as the root user does not have access to devices.

Usage considerations

• This control applies only to Amazon ECS task definitions that are configured with container definitions.

Remediation for rule failure

Set the User property to a non-root user.

The examples that follow show how to implement this remediation.

Amazon ECS Task Definition - Example

Amazon ECS task definition configured with a container definition and a non-root user. The example is shown in JSON and in YAML.

JSON example

```json
{
   "ECSTaskDefinition": {
      "Type": "AWS::ECS::TaskDefinition",
      "Properties": {
         "Memory": "512",
         "ContainerDefinitions": [
            {
               "Essential": true,
               "Image": "nginx:latest"
            }
         ]
      }
   }
}
```
"Name": "SampleContainerA",
"User": "sampleuser",
"Memory": 256
}
]
}
}

YAML example

ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
Properties:
  Memory: '512'
ContainerDefinitions:
  - Essential: true
    Image: nginx:latest
    Name: SampleContainerA
    User: sampleuser
    Memory: 256

CT.ECS.PR.3 rule specification

# ###################################################################
##       Rule Specification        ##
###################################################################
#
# Rule Identifier:
#   ecs_task_definition_nonroot_user_check
#
# Description:
#   This control checks whether Amazon Elastic Container Service (ECS) task definitions run as a non-root user within Amazon ECS containers.
#
# Reports on:
#   AWS::ECS::TaskDefinition
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
# # Rule Parameters:
#   None
# # Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document does not contain an ECS task definition resource
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains an ECS task definition resource
#     And: 'ContainerDefinitions' is not present or is an empty list
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains an ECS task definition resource
#     And: 'ContainerDefinitions' property is present and is not an empty list
#     And: One or more containers defined in 'ContainerDefinitions' do not provide a 'User' property
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains an ECS task definition resource
#     And: 'ContainerDefinitions' is present and is not an empty list
#     And: One or more containers defined in 'ContainerDefinitions' has a 'User' property set to a root user
#     value (0, 'root', '0:<group>', 'root:<group>')
#     Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains an ECS task definition resource
#     And: 'ContainerDefinitions' is present and is not an empty list
#     And: All containers defined in 'ContainerDefinitions' do not have a 'User' property set to a root user
#     value (0, 'root', '0:<group>', 'root:<group>')
#     Then: PASS
# Constants
let ECS_TASK_DEFINITION_TYPE = "AWS::ECS::TaskDefinition"
let INPUT_DOCUMENT = this
let ROOT_USER_PATTERNS = [ 0 , "0" , "root" , /^0:.*/ , /^root:.*/ ]

# Assignments
let ecs_task_definitions = Resources.*[ Type == ECS_TASK_DEFINITION_TYPE ]

# Primary Rules
rule ecs_task_definition_nonroot_user_check when is_cfn_template(INPUT_DOCUMENT)
  %ecs_task_definitions not empty {
    check(%ecs_task_definitions.Properties)
    <<
    [CT.ECS.PR.3]: Require any Amazon ECS task definition to specify a user that is not the root
    [FIX]: Set the 'User' property to a non-root user.
    >>
  }

rule ecs_task_definition_nonroot_user_check when is_cfn_hook(INPUT_DOCUMENT, ECS_TASK_DEFINITION_TYPE) {
  check(INPUT_DOCUMENT.%ECS_TASK_DEFINITION_TYPE.resourceProperties)
  <<
  [CT.ECS.PR.3]: Require any Amazon ECS task definition to specify a user that is not the root
  [FIX]: Set the 'User' property to a non-root user.
  >>
}

# Parameterized Rules
rule check(ecs_task_definition) {
  %ecs_task_definition [
    filter_container_definitions_is_present(this)
  ][
    ContainerDefinitions[*] {
      
}
# Scenario 3
User exists

# Scenario 4 and 5
User not in %ROOT_USER_PATTERNS

```python
rule filter_container_definitions_is_present(ecs_task_definition) {
    %ecs_task_definition {
        # Scenario 2
        ContainerDefinitions exists
        ContainerDefinitions is_list
        ContainerDefinitions not empty
    }
}
```

# Utility Rules

# CT.ECS.PR.3 example templates
You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

**Resources:**

- ECSTaskDefinition:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

[CT.ECS.PR.4]Require Amazon ECS tasks to use 'awsvpc' networking mode

This control checks whether the networking mode for Amazon Elastic Container Service (ECS) task definitions is set to awsvpc.

- Control objective: Limit network access
• **Implementation:** AWS CloudFormation Guard Rule

• **Control behavior:** Proactive

• **Resource types:** AWS::ECS::TaskDefinition

• **AWS CloudFormation guard rule:** [CT.ECS.PR.4 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECS.PR.4 rule specification](#)

- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECS.PR.4 example templates](#)

**Explanation**

Amazon ECS recommends using the `awsvpc` network mode, unless you have a specific reason to use a different network mode. The `awsvpc` network mode simplifies container networking, and it gives you control over the ways that containerized applications communicate with each other, or with other services, within your VPCs. The `awsvpc` network mode provides improved security for your containers, because it empowers you to use security groups and network monitoring tools at a detailed level within your tasks. Each task has its own elastic network interface (ENI); therefore, you can include other Amazon EC2 networking features, such as VPC Flow Logs, which help you monitor traffic among your tasks.

**Usage considerations**

- This control applies only to Amazon ECS task definitions for launch types of EC2 and Fargate.

**Remediation for rule failure**

Set `NetworkMode` to `awsvpc` for Amazon ECS tasks that deploy to Amazon EC2 or AWS Fargate.

The examples that follow show how to implement this remediation.
Amazon ECS Task Definition - Example

Amazon ECS task definition configured with awsvpc networking mode. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "Resources": {
      "ECSTaskDefinition": {
         "Type": "AWS::ECS::TaskDefinition",
         "Properties": {
            "ContainerDefinitions": [
               {
                  "Essential": true,
                  "Image": "nginx:latest",
                  "Name": "SampleContainer"
               }
            ],
            "Memory": 512,
            "NetworkMode": "awsvpc"
         }
      }
   }
}
```

**YAML example**

```yaml
Resources:
   ECSTaskDefinition:
      Type: AWS::ECS::TaskDefinition
      Properties:
         ContainerDefinitions:
            - Essential: true
              Image: nginx:latest
              Name: SampleContainer
         Memory: 512
         NetworkMode: awsvpc
```
CT.ECS.PR.4 rule specification

# ###################################################################
##       Rule Specification        ##
###################################################################
#
# Rule Identifier:
#   ecs_awsvpc_networking_enabled_check
#
# Description:
#   This control checks whether the networking mode for Amazon Elastic Container
#   Service (ECS) task definitions is set to 'awsvpc'.
#
# Reports on:
#   AWS::ECS::TaskDefinition
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation
#     hook document
#     And: The input document does not contain an ECS task definition resource
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation
#     hook document
#     And: The input document contains an ECS task definition resource
#     And: 'RequiresCompatibilities' is present and only has one entry in the list
#     set to 'EXTERNAL'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation
#     hook document
#     And: The input document contains an ECS task definition resource
#     And: 'RequiresCompatibilities' is either not present or set to a list with
#     entries that include 'EC2',
#     'FARGATE' or both.
#     And: 'NetworkMode' is not present
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
And: The input document contains an ECS task definition resource
And: 'RequiresCompatibilities' is either not present or set to a list with entries that include 'EC2', 'FARGATE' or both.
And: 'NetworkMode' is present
And: 'NetworkMode' is not set to 'awsvpc'
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
And: The input document contains an ECS task definition resource
And: 'RequiresCompatibilities' is either not present or set to a list with entries that include 'EC2', 'FARGATE' or both.
And: 'NetworkMode' is present
And: 'NetworkMode' is set to 'awsvpc'
Then: PASS

Constants
let ECS_TASK_DEFINITION_TYPE = "AWS::ECS::TaskDefinition"
let ALLOWED_NETWORK_MODES = [ "awsvpc" ]
let SUPPORTED_LAUNCH_PLATFORMS = [ "EC2", "FARGATE" ]
let INPUT_DOCUMENT = this

Assignments
let ecs_task_definitions = Resources.*[ Type == %ECS_TASK_DEFINITION_TYPE ]

Primary Rules
rule ecs_awsvpc_networking_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%ecs_task_definitions not empty {
  check(%ecs_task_definitions.Properties)
  <<
  [CT.ECS.PR.4]: Require Amazon ECS tasks to use 'awsvpc' networking mode
[FIX]: Set 'NetworkMode' to 'awsvpc' for Amazon ECS tasks that deploy to Amazon EC2 or AWS Fargate.

>>

rule ecs_awsvpc_networking_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ECS_TASK_DEFINITION_TYPE) {
    check(%INPUT_DOCUMENT.%ECS_TASK_DEFINITION_TYPE.resourceProperties)
    <<<
    [CT.ECS.PR.4]: Require Amazon ECS tasks to use 'awsvpc' networking mode
    [FIX]: Set 'NetworkMode' to 'awsvpc' for Amazon ECS tasks that deploy to Amazon EC2 or AWS Fargate.
    >>
}

# Parameterized Rules
#
rule check(ecs_task_definition) {
    %ecs_task_definition [ filter_external_task_definitions(this) ] {
        # Scenario 3
        NetworkMode exists

        # Scenario 4 and 5
        NetworkMode is_string
        NetworkMode in %ALLOWED_NETWORK_MODES
    }
}

rule filter_external_task_definitions(ecs_task_definition) {
    %ecs_task_definition {
        # Scenario 2
        RequiresCompatibilities not exists or
        filter_supported_task_definitions(RequiresCompatibilities)
    }
}

rule filter_supported_task_definitions(requires_compatibilities) {
    %requires_compatibilities {
        this is_list
        this not empty
        some this[*] in %SUPPORTED_LAUNCH_PLATFORMS
    }
}
# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

## CT.ECS.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

Resources:
- **ECSTaskDefinition**:
  - Type: AWS::ECS::TaskDefinition
  - Properties:
    - ContainerDefinitions:
      - Essential: true
      - Image: nginx:latest
      - Name: ExampleContainer
      - Memory: 512
      - NetworkMode: awsvpc

**FAIL Example** - Use this template to verify that the control prevents non-compliant resource creation.
Resources:
ECSTaskDefinition:
    Type: AWS::ECS::TaskDefinition
    Properties:
        ContainerDefinitions:
        - Essential: true
          Image: nginx:latest
          Name: ExampleContainer
          Memory: 512

[CT.ECS.PR.5] Require an active Amazon ECS task definition to have a logging configuration

This control checks whether Amazon Elastic Container Service (ECS) task definitions have a logging configuration specified.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECS::TaskDefinition
- **AWS CloudFormation guard rule:** [CT.ECS.PR.5 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECS.PR.5 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECS.PR.5 example templates](#)

Explanation

Monitoring is an important part of maintaining the reliability, availability, and performance of Amazon Elastic Container Service (ECS) and your AWS environments. We recommend that you collect monitoring data from all parts of your AWS environment, because this data can help you debug a multi-point failure, if such a failure occurs.
Usage considerations

- This control applies only to Amazon ECS task definitions that are configured with container definitions.

Remediation for rule failure

For each container definition, within LogConfiguration set the LogDriver property to a supported log driver.

The examples that follow show how to implement this remediation.

Amazon ECS Task Definition - Example

Amazon ECS task definition configured to send log information to Amazon CloudWatch Logs for each container definition. The example is shown in JSON and in YAML.

JSON example

```json
{
   "ECSTaskDefinition": {
      "Type": "AWS::ECS::TaskDefinition",
      "Properties": {
         "Memory": "512",
         "ContainerDefinitions": [
            {
               "Name": "ContainerA",
               "Image": "nginx:latest",
               "Essential": true,
               "LogConfiguration": {
                  "LogDriver": "awslogs",
                  "Options": {
                     "awslogs-group": {
                        "Ref": "LogGroup"
                     },
                     "awslogs-region": {
                        "Ref": "AWS::Region"
                     }
                  }
               }
            }
         ]
      }
   }
}```
YAML example

ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
Properties:
  Memory: '512'
  ContainerDefinitions:
  - Name: ContainerA
    Image: nginx:latest
    Essential: true
    LogConfiguration:
      LogDriver: awslogs
      Options:
        awslogs-group: !Ref 'LogGroup'
        awslogs-stream-prefix: Container-A-LogStream
        awslogs-region: !Ref 'AWS::Region'
  - Name: ContainerB
    Image: nginx:latest
CT.ECS.PR.5 rule specification

```
# #####################################################################
##       Rule Specification       ##
# #####################################################################
#
# Rule Identifier:
#   ecs_task_definition_log_configuration_check
#
# Description:
#   This control checks whether Amazon Elastic Container Service (ECS) task definitions
#   have a logging configuration specified.
#
# Reports on:
#   AWS::ECS::TaskDefinition
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation
#            hook document
#     And: The input document does not contain an ECS task definition resource
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation
#            hook document
#     And: The input document contains an ECS task definition resource
#     And: 'ContainerDefinitions' property is not present or is an empty list
```

LogConfiguration:
  LogDriver: awslogs
  Options:
    awslogs-group: !Ref 'LogGroup'
    awslogs-stream-prefix: Container-B-LogStream
    awslogs-region: !Ref 'AWS::Region'
# Then: SKIP  
# Scenario: 3  
# Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document  
# And: The input document contains an ECS task definition resource  
# And: 'ContainerDefinitions' property is present and is not an empty list  
# And: One or more containers defined in 'ContainerDefinitions' do not have 'LogConfiguration' set or it is set to an empty struct  
# Then: FAIL  
# Scenario: 4  
# Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document  
# And: The input document contains an ECS task definition resource  
# And: 'ContainerDefinitions' property is present and is not an empty list  
# And: One or more containers defined in 'ContainerDefinitions' have 'LogConfiguration' property present  
# And: 'LogConfiguration.LogDriver' is not present or is set to an empty string  
# Then: FAIL  
# Scenario: 5  
# Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document  
# And: The input document contains an ECS task definition resource  
# And: 'ContainerDefinitions' property is present  
# And: All containers defined in 'ContainerDefinitions' have 'LogConfiguration' property present  
# And: 'LogConfiguration.LogDriver' is present and set to a non-empty string  
# Then: PASS

# Constants  
# Assignments  
let ECS_TASK_DEFINITION_TYPE = "AWS::ECS::TaskDefinition"  
let INPUTDOCUMENT = this

# Assignments  
let ecs_task_definitions = Resources.*[ Type == %ECS_TASK_DEFINITION_TYPE ]

# Primary Rules  
rule ecs_task_definition_log_configuration_check when is_cfn_template(%INPUTDOCUMENT)
%ecs_task_definitions not empty {
  check(%ecs_task_definitions.Properties)
  <<
  [CT.ECS.PR.5]: Require an active Amazon ECS task definition to have a logging
  configuration
  [FIX]: For each container definition, within 'LogConfiguration' set the
  'LogDriver' property to a supported log driver.
  >>
}

rule ecs_task_definition_log_configuration_check when is_cfn_hook(%INPUT_DOCUMENT, %ECS_TASK_DEFINITION_TYPE) {
  check(%INPUT_DOCUMENT.%ECS_TASK_DEFINITION_TYPE.resourceProperties)
  <<
  [CT.ECS.PR.5]: Require an active Amazon ECS task definition to have a logging
  configuration
  [FIX]: For each container definition, within 'LogConfiguration' set the
  'LogDriver' property to a supported log driver.
  >>
}

# Parameterized Rules
#
rule check(ecs_task_definition) {
  %ecs_task_definition[
    filter_container_definitions_is_present(this)
  ][ContainerDefinitions[*] {
    # Scenario 3
    LogConfiguration exists
    LogConfiguration is_struct
    LogConfiguration not empty

    # Scenario 4 and 5
    LogConfiguration {
      LogDriver exists
      check_is_string_and_not_empty(LogDriver)
    }
  }
}

rule filter_container_definitions_is_present(ecs_task_definition) {
%ecs_task_definition {
    # Scenario 2
    ContainerDefinitions exists
    ContainerDefinitions is_list
    ContainerDefinitions not empty
}

# Utility Rules

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ECS.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
LogGroup:
    Type: AWS::Logs::LogGroup
    DeletionPolicy: Delete
UpdateReplacePolicy: Delete
ECSTaskDefinition:
   Type: AWS::ECS::TaskDefinition
   Properties:
      Memory: '512'
   ContainerDefinitions:
      - Name: ContainerA
        LogConfiguration:
          LogDriver: awslogs
          Options:
            awslogs-group:
              Ref: LogGroup
            awslogs-stream-prefix: Container-A-LogStream
            awslogs-region:
              Ref: AWS::Region
          Essential: true
          Image: nginx:latest
      - Name: ContainerB
        LogConfiguration:
          LogDriver: awslogs
          Options:
            awslogs-group:
              Ref: LogGroup
            awslogs-stream-prefix: Container-B-LogStream
            awslogs-region:
              Ref: AWS::Region
          Image: nginx:latest

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
   LogGroup:
      Type: AWS::Logs::LogGroup
      DeletionPolicy: Delete
      UpdateReplacePolicy: Delete
   ECSTaskDefinition:
      Type: AWS::ECS::TaskDefinition
      Properties:
         Memory: '512'
ContainerDefinitions:
- Name: ContainerA
  Essential: true
  Image: nginx:latest
- Name: ContainerB
  Image: nginx:latest
LogConfiguration:
  LogDriver: awslogs
  Options:
    awslogs-group:
      Ref: LogGroup
    awslogs-stream-prefix: Container-B-LogStream
    awslogs-region:
      Ref: AWS::Region

---

[CT.ECS.PR.6] Require Amazon ECS containers to allow read-only access to the root filesystem

This control checks whether Amazon Elastic Container Service (Amazon ECS) task definitions have been configured to require read-only access to container root filesystems.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECS::TaskDefinition
- **AWS CloudFormation guard rule:** [CT.ECS.PR.6 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECS.PR.6 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECS.PR.6 example templates](#)

Explanation

Enabling this option reduces security attack vectors. When it is enabled, the container instance's filesystem cannot be tampered with or written to unless it has explicitly granted read-write access.
permissions on its filesystem folder and directories. This control adheres to the principle of least privilege.

**Usage considerations**

- This control is incompatible with Amazon ECS task definitions that use Windows containers.

**Remediation for rule failure**

Set the `ReadonlyRootFilesystem` property to `true` for all `ContainerDefinitions`. The examples that follow show how to implement this remediation.

**Amazon ECS Task Definition - Example**

Amazon ECS task definition with read-only access to container root filesystems. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ECSTaskDefinition": {
      "Type": "AWS::ECS::TaskDefinition",
      "Properties": {
         "ContainerDefinitions": [
            {
               "Essential": true,
               "Image": "nginx:latest",
               "Name": "SampleContainerA",
               "ReadonlyRootFilesystem": true
            },
            {
               "Image": "alpine:latest",
               "Name": "SampleContainerB",
               "ReadonlyRootFilesystem": true
            }
         ],
         "Memory": "512"
      }
   }
}
```
YAML example

ECSTaskDefinition:  
  Type: AWS::ECS::TaskDefinition  
  Properties:  
    ContainerDefinitions:  
      - Essential: true  
        Image: nginx:latest  
        Name: SampleContainerA  
        ReadonlyRootFilesystem: true  
      - Image: alpine:latest  
        Name: SampleContainerB  
        ReadonlyRootFilesystem: true  
    Memory: '512'  

CT.ECS.PR.6 rule specification

```bash  
# ###################################################################  
## Rule Specification  
# ###################################################################  
# Rule Identifier:  
#   ecs_containers_readonly_access_check  
#  
# Description:  
#   This control checks whether Amazon Elastic Container Service (Amazon ECS) task definitions have been configured to require read-only access to container root filesystems.  
#  
# Reports on:  
#   AWS::ECS::TaskDefinition  
#  
# Evaluates:  
#   AWS CloudFormation, AWS CloudFormation hook  
#  
# Rule Parameters:  
#   None  
```
# Scenarios:
# Scenario: 1
#   Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#       And: The input document does not contain an Amazon ECS task definition resource
#       Then: SKIP
# Scenario: 2
#   Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#       And: The input document contains an Amazon ECS task definition resource
#       And: 'ContainerDefinitions' property is not present or is empty
#       Then: SKIP
# Scenario: 3
#   Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#       And: The input document contains an Amazon ECS task definition resource
#       And: 'ContainerDefinitions' property is present
#       And: One or more containers defined in 'ContainerDefinitions' do not have 'ReadonlyRootFilesystem' present
#       Then: FAIL
# Scenario: 4
#   Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#       And: The input document contains an Amazon ECS task definition resource
#       And: 'ContainerDefinitions' property is present
#       And: One or more containers defined in 'ContainerDefinitions' have the value of 'ReadonlyRootFilesystem' set to \n#           bool(false)
#       Then: FAIL
# Scenario: 5
#   Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#       And: The input document contains an Amazon ECS task definition resource
#       And: 'ContainerDefinitions' property is present
#       And: All containers defined in 'ContainerDefinitions' have the value of 'ReadonlyRootFilesystem' set to \n#           bool(true)
#       Then: PASS

# Constants
#
let ECS_TASK_DEFINITION_TYPE = "AWS::ECS::TaskDefinition"
let INPUT_DOCUMENT = this
#
# Assignments
#
let ecs_task_definitions = Resources.[ Type == %ECS_TASK_DEFINITION_TYPE ]
#
# Primary Rules
#
rule ecs_containers_readonly_access_check when is_cfn_template(%INPUT_DOCUMENT)
    %ecs_task_definitions not empty {
        check(%ecs_task_definitions.Properties)
        
        [CT.ECS.PR.6]: Require Amazon ECS containers to allow read-only access to the root filesystem
        [FIX]: Set the 'ReadonlyRootFilesystem' property to 'true' for all 'ContainerDefinitions'.
    }

rule ecs_containers_readonly_access_check when is_cfn_hook(%INPUT_DOCUMENT, %ECS_TASK_DEFINITION_TYPE) {
    check(%INPUT_DOCUMENT.%ECS_TASK_DEFINITION_TYPE.resourceProperties)
    
    [CT.ECS.PR.6]: Require Amazon ECS containers to allow read-only access to the root filesystem
    [FIX]: Set the 'ReadonlyRootFilesystem' property to 'true' for all 'ContainerDefinitions'.
}
#
# Parameterized Rules
#
rule check(ecs_task_definition) {
    %ecs_task_definition [ filter_container_definitions_is_present(this) ]{
        ContainerDefinitions[*] {
            # Scenario 3
            ReadonlyRootFilesystem exists

            # Scenario 4
            ReadonlyRootFilesystem == true
        }
    }

Proactive controls
CT.ECS.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
Properties:
  ContainerDefinitions:
    - Essential: true
      Image: nginx:latest
      Name: SampleContainerA
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

**Resources:**

```yaml
ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    ContainerDefinitions:
      - Essential: true
        Image: nginx:latest
        Name: SampleContainerA
        ReadonlyRootFilesystem: false
      - Image: alpine:latest
        Name: SampleContainerB
        ReadonlyRootFilesystem: false
        Memory: '512'
```

[CT.ECS.PR.7] Require an Amazon ECS task definition to have a specific memory usage limit

This control checks whether Amazon Elastic Container Service (ECS) task definitions have specified a memory limit for container definitions.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECS::TaskDefinition
- **AWS CloudFormation guard rule:** [CT.ECS.PR.7 rule specification](#)

Details and examples
For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECS.PR.7 rule specification](#).

For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECS.PR.7 example templates](#).

**Explanation**

We recommend that you specify the maximum memory available to your containers, because this limit protects your resources in the event of malicious access to your containers.

**Usage considerations**

- This control applies only to Amazon ECS task definitions that are configured with container definitions.

**Remediation for rule failure**

Set the `Memory` property in `ContainerDefinitions` for Amazon ECS task definitions.

The examples that follow show how to implement this remediation.

**Amazon ECS Task Definition - Example**

Amazon ECS task definition configured with a specified memory limit for container definitions. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ECSTaskDefinition": {
      "Type": "AWS::ECS::TaskDefinition",
      "Properties": {
         "ContainerDefinitions": [
            {
               "Essential": true,
               "Image": "nginx:latest",
               "Name": "SampleContainer",
               "Memory": 256
            }
         ]
      }
   }
}
```
YAML example

```
ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    ContainerDefinitions:
      - Essential: true
        Image: nginx:latest
        Name: SampleContainer
        Memory: 256
```

CT.ECS.PR.7 rule specification

```
# ####################################################################
#                      Rule Specification                    #
# ####################################################################

# Rule Identifier:
#   ecs_task_definition_memory_hard_limit_check
#
# Description:
#   This control checks whether Amazon Elastic Container Service (ECS) task definitions
#   have specified a memory limit for container definitions.
#
# Reports on:
#   AWS::ECS::TaskDefinition
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
```
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document does not contain an ECS task definition resource
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains an ECS task definition resource
#     And: 'ContainerDefinitions' property is not present or is an empty list
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains an ECS task definition resource
#     And: 'ContainerDefinitions' property is present and is not an empty list
#     And: One or more containers defined in 'ContainerDefinitions' do not have 'Memory' property set
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains an ECS task definition resource
#     And: 'ContainerDefinitions' property is present and is not an empty list
#     And: One or more containers defined in 'ContainerDefinitions' have 'Memory' property set to an integer value less than four (< 4)
#     Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains an ECS task definition resource
#     And: 'ContainerDefinitions' property is present
#     And: All containers defined in 'ContainerDefinitions' have 'Memory' property set to an integer value greater than or equal to four (>= 4)
#     Then: PASS

# Constants
#
let ECS_TASK_DEFINITION_TYPE = "AWS::ECS::TaskDefinition"
let INPUTDOCUMENT = this
# Assignments

let ecs_task_definitions = Resources.*[Type == %ECS_TASK_DEFINITION_TYPE]

# Primary Rules

rule ecs_task_definition_memory_hard_limit_check when is_cfn_template(%INPUT_DOCUMENT)
  %ecs_task_definitions not empty {
    check(%ecs_task_definitions.Properties)
    <<
      [CT.ECS.PR.7]: Require an Amazon ECS task definition to have a specific memory usage limit
      [FIX]: Set the 'Memory' property in 'ContainerDefinitions' for Amazon ECS task definitions.
    >>
  }

rule ecs_task_definition_memory_hard_limit_check when is_cfn_hook(%INPUT_DOCUMENT, %ECS_TASK_DEFINITION_TYPE) {
  check(%INPUT_DOCUMENT.%ECS_TASK_DEFINITION_TYPE.resourceProperties)
  <<
    [CT.ECS.PR.7]: Require an Amazon ECS task definition to have a specific memory usage limit
    [FIX]: Set the 'Memory' property in 'ContainerDefinitions' for Amazon ECS task definitions.
  >>
}

# Parameterized Rules

rule check(ecs_task_definition) {
  %ecs_task_definition [filter_container_definitions_is_present(this)]{
    ContainerDefinitions[*] {
      # Scenario 3
      Memory exists

      # Scenario 4 and 5
      Memory >= 4
    }
  }
}
CT.ECS.PR.7 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
Properties:
  ContainerDefinitions:
    - Essential: true
      Image: nginx:latest
      Name: ExampleContainerA
      Memory: 256
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    Memory: "512"
  ContainerDefinitions:
    - Essential: true
      Image: nginx:latest
      Name: ExampleContainerA
      Memory: 256
    - Image: alpine:latest
      Name: ExampleContainerB
      Memory: 3

[CT.ECS.PR.8] Require Amazon ECS task definitions to have secure networking modes and user definitions

This control checks whether Amazon Elastic Container Service (ECS) task definitions that use host networking mode have a privileged container definition, and whether they specify a non-root user definition.

- **Control objective**: Manage vulnerabilities
- **Implementation**: AWS CloudFormation Guard Rule
- **Control behavior**: Proactive
- **Resource types**: AWS::ECS::TaskDefinition
- **AWS CloudFormation guard rule**: [CT.ECS.PR.8 rule specification](#)
• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.ECS.PR.8 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.ECS.PR.8 example templates

Explanation

If a task definition has elevated privileges, it implies that a customer has specifically chosen that configuration. This control checks for unexpected privilege escalation, which occurs when a task definition enables host networking, but a customer has not opted into elevated privileges.

Usage considerations

• This control applies only to Amazon ECS task definitions that include host networking mode and one or more container definitions.
• This control is incompatible with Amazon ECS task definitions that use Windows containers.

Remediation for rule failure

For Amazon ECS task definitions that use host networking mode, your container definitions must set the User property to a non-root user. Also, to opt into elevated privileges, configure containers to run in privileged mode by setting the Privileged property to true.

The examples that follow show how to implement this remediation.

Amazon ECS Task Definition - Example One

Amazon ECS task definition with host networking mode configured for privileged container definitions. The example is shown in JSON and in YAML.

JSON example

```json
{
   "ECSTaskDefinition": {
      "Type": "AWS::ECS::TaskDefinition",
```
"Properties": {
    "Memory": "512",
    "NetworkMode": "host",
    "ContainerDefinitions": [
        {
            "Name": "SampleContainerA",
            "User": "root",
            "Privileged": true,
            "Image": "nginx:latest",
            "Essential": true
        },
        {
            "Name": "SampleContainerB",
            "User": "root",
            "Privileged": true,
            "Image": "alpine:latest"
        }
    ]
}

**YAML example**

```yaml
ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    Memory: '512'
    NetworkMode: host
  ContainerDefinitions:
  - Name: SampleContainerA
    User: root
    Privileged: true
    Image: nginx:latest
    Essential: true
  - Name: SampleContainerB
    User: root
    Privileged: true
    Image: alpine:latest
```

Proactive controls
The examples that follow show how to implement this remediation.

**Amazon ECS Task Definition - Example Two**

Amazon ECS task definition with host networking mode configured for non-root user container definitions and privileged mode deactivated, by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ECSTaskDefinition": {
      "Type": "AWS::ECS::TaskDefinition",
      "Properties": {
         "Memory": "512",
         "NetworkMode": "host",
         "ContainerDefinitions": [
            {
               "Name": "SampleContainerA",
               "User": "root",
               "Privileged": true,
               "Image": "nginx:latest",
               "Essential": true
            },
            {
               "Name": "SampleContainerB",
               "User": "root",
               "Privileged": true,
               "Image": "alpine:latest"
            }
         ]
      }
   }
}
```

**YAML example**

```
ECSTaskDefinition:
   Type: AWS::ECS::TaskDefinition
   Properties:
```
Memory: '512'
NetworkMode: host
ContainerDefinitions:
- Name: SampleContainerA
  User: root
  Privileged: true
  Image: nginx:latest
  Essential: true
- Name: SampleContainerB
  User: root
  Privileged: true
  Image: alpine:latest

CT.ECS.PR.8 rule specification

# ################################################################################
##       Rule Specification        ##
# ################################################################################
#
# Rule Identifier:
#  ecs_task_definition_user_for_host_mode_check
#
# Description:
#  This control checks whether Amazon Elastic Container Service (ECS) task definitions
#  that use 'host' networking mode have a privileged container definition, and whether
#  they specify a non-root user definition.
#
# Reports on:
#  AWS::ECS::TaskDefinition
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#  None
#
# Scenarios:
#  Scenario: 1
#  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document does not contain an ECS task definition resource
Then: SKIP

Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ECS task definition resource
And: 'ContainerDefinitions' property is not present or is an empty list
Then: SKIP

Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ECS task definition resource
And: 'ContainerDefinitions' property is present and is not an empty list
And: 'NetworkMode' property is either not present or set to a value other than 'host'
Then: SKIP

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ECS task definition resource
And: 'ContainerDefinitions' property is present and is not an empty list
And: 'NetworkMode' property is present and set to 'host'
And: A container defined in 'ContainerDefinitions' has 'Privileged' property not set or is set as bool(false)
And: This same container either does not have the 'User' property set or has it set to a value that translates to root user
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ECS task definition resource
And: 'ContainerDefinitions' property is present
And: 'NetworkMode' property is present and set to 'host'
And: All containers defined in 'ContainerDefinitions' either have the 'Privileged' property set to bool(true) or have their 'User' property set to a value that does not translate to root user
Then: PASS

# Constants

let ECS_TASK_DEFINITION_TYPE = "AWS::ECS::TaskDefinition"
let INPUT_DOCUMENT = this
let ROOT_USER_PATTERNS = [ \0 , "\0" , "root" , /^\0:.*$/ , /^root:.*$/ ]
let VALID_NETWORK_MODES = [ "host" ]

# # Assignments #
let ecs_task_definitions = Resources.*[ Type == ECS_TASK_DEFINITION_TYPE ]

# # Primary Rules #
rule ecs_task_definition_user_for_host_mode_check when is_cfn_template(INPUT_DOCUMENT)
%ecs_task_definitions not empty
{
    check(%ecs_task_definitions.Properties)
    =>
    [CT.ECS.PR.8]: Require Amazon ECS task definitions to have secure networking modes and user definitions
    [FIX]: For Amazon ECS task definitions that use 'host' networking mode, your container definitions must set the 'User' property to a non-root user. Also, to opt into elevated privileges, configure containers to run in privileged mode by setting the 'Privileged' property to 'true'.
    >>
}

rule ecs_task_definition_user_for_host_mode_check when is_cfn_hook(INPUT_DOCUMENT, ECS_TASK_DEFINITION_TYPE) {
    check(INPUT_DOCUMENT.%ECS_TASK_DEFINITION_TYPE.resourceProperties)
    =>
    [CT.ECS.PR.8]: Require Amazon ECS task definitions to have secure networking modes and user definitions
    [FIX]: For Amazon ECS task definitions that use 'host' networking mode, your container definitions must set the 'User' property to a non-root user. Also, to opt into elevated privileges, configure containers to run in privileged mode by setting the 'Privileged' property to 'true'.
    >>
}

# # Parameterized Rules #
rule check(ecs_task_definition) {
    %ecs_task_definition [
filter_nw_mode_container_definitions(ecs_task_definition)
]
    ContainerDefinitions[*] {
        # Scenario 4 and 5
        check_elevated_privilege_containers(this) or 
        check_nonroot_user_containers(this)
    }
}
}

rule check_elevated_privilege_containers(container_definition) {
    %container_definition {
        Privileged exists
        Privileged == true
    }
}

rule check_nonroot_user_containers(container_definition) {
    %container_definition {
        User exists
        User not in %ROOT_USER_PATTERNS
    }
}

rule filter_nw_mode_container_definitions(ecs_task_definition) {
    %ecs_task_definition {
        # Scenario 2
        ContainerDefinitions exists
        ContainerDefinitions is_list
        ContainerDefinitions not empty

        # Scenario 3
        NetworkMode exists
        NetworkMode is_string
        NetworkMode in %VALID_NETWORK_MODES
    }
}

# Utility Rules

# is_cfn_template(doc) {
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
CT.ECS.PR.8 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    Memory: '512'
    NetworkMode: host
  ContainerDefinitions:
    - Name: ExampleContainerA
      User: root
      Privileged: true
      Image: nginx:latest
      Essential: true
    - Name: ExampleContainerB
      User: root
      Privileged: true
      Image: alpine:latest

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
[CT.ECS.PR.9] Require Amazon ECS services not to assign public IP addresses automatically

This control checks whether your Amazon Elastic Container Service (Amazon ECS) service resources are configured to assign public IP addresses automatically.

- **Control objective:** Limit network access, Enforce least privilege
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECS::Service
- **AWS CloudFormation guard rule:** [CT.ECS.PR.9 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECS.PR.9 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECS.PR.9 example templates](#)

Explanation

A public IP address is an IP address that is reachable from the internet. If you launch your Amazon ECS instances with a public IP address, then your Amazon ECS instances are reachable from the
internet. Amazon ECS services should not be publicly accessible, because it may allow unintended access to your container application servers.

**Remediation for rule failure**

Set `AssignPublicIp` in `NetworkConfiguration.AwsvpcConfiguration` to `DISABLED`.

The examples that follow show how to implement this remediation.

**Amazon ECS Service - Example One**

Amazon ECS service configured to disallow automatic public IP address assignment, by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ECSService": {
        "Type": "AWS::ECS::Service",
        "Properties": {
            "Cluster": {
                "Ref": "ECSCluster"
            },
            "DesiredCount": 0,
            "TaskDefinition": {
                "Ref": "ECSTaskDefinition"
            },
            "LaunchType": "FARGATE",
            "NetworkConfiguration": {
                "AwsvpcConfiguration": {
                    "Subnets": [
                        {
                            "Ref": "SubnetOne"
                        },
                        {
                            "Ref": "SubnetTwo"
                        }
                    ]
                }
            }
        }
    }
}
```
YAML example

```yaml
ECSService:
  Type: AWS::ECS::Service
  Properties:
    Cluster: !Ref 'ECSCluster'
    DesiredCount: 0
    TaskDefinition: !Ref 'ECSTaskDefinition'
  LaunchType: FARGATE
  NetworkConfiguration:
    AwsvpcConfiguration:
      Subnets:
      - !Ref 'SubnetOne'
      - !Ref 'SubnetTwo'
```

The examples that follow show how to implement this remediation.

**Amazon ECS Service - Example Two**

Amazon ECS service configured to disallow automatic public IP address assignment, by means of the AssignPublicIp property. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ECSService": {
      "Type": "AWS::ECS::Service",
      "Properties": {
         "Cluster": {
            "Ref": "ECSCluster"
         },
         "DesiredCount": 0,
         "TaskDefinition": {
            "Ref": "ECSTaskDefinition"
         },
         "LaunchType": "FARGATE",
         "NetworkConfiguration": {
```
"AwsvpcConfiguration": {
    "AssignPublicIp": "DISABLED",
    "Subnets": [
        {
            "Ref": "SubnetOne"
        },
        {
            "Ref": "SubnetTwo"
        }
    ]
}

YAML example

ECSService:
  Type: AWS::ECS::Service
  Properties:
    Cluster: !Ref 'ECSCluster'
    DesiredCount: 0
    TaskDefinition: !Ref 'ECSTaskDefinition'
    LaunchType: FARGATE
    NetworkConfiguration:
      AwsvpcConfiguration:
        AssignPublicIp: DISABLED
        Subnets:
          - !Ref 'SubnetOne'
          - !Ref 'SubnetTwo'

CT.ECS.PR.9 rule specification

# #########################################################################
##       Rule Specification        ##
#########################################################################
#

Proactive controls
# Rule Identifier:
ecsc_service_assign_public_ip_disabled_check

# Description:
This control checks whether your Amazon Elastic Container Service (Amazon ECS) service resources are configured to assign public IP addresses automatically.

# Reports on:
AWS::ECS::Service

# Evaluates:
AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain an Amazon ECS service resource
# Then: SKIP

# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon ECS service resource
# And: 'NetworkConfiguration' property is not present
# Then: SKIP

# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon ECS service resource
# And: 'NetworkConfiguration.AwsvpcConfiguration' property is not present
# Then: SKIP

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon ECS service resource
# And: 'NetworkConfiguration.AwsvpcConfiguration' property is present
# And: 'AssignPublicIp' property is present and set to 'ENABLED'
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon ECS service resource
And: 'NetworkConfiguration.AwsvpcConfiguration' property is present
And: 'AssignPublicIp' property is not present
Then: PASS

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an Amazon ECS service resource
And: 'NetworkConfiguration.AwsvpcConfiguration' property is present
And: 'AssignPublicIp' property is present and set to 'DISABLED'
Then: PASS

Constants
let ECS_SERVICE_TYPE = "AWS::ECS::Service"
let INPUT_DOCUMENT = this

Assignments
let ecs_services = Resources.*[ Type == %ECS_SERVICE_TYPE ]

Primary Rules
rule ecs_service_assign_public_ip_disabled_check when is_cfn_template(%INPUT_DOCUMENT)
%ecs_services not empty {
  check(%ecs_services.Properties)
  <<
  [CT.ECS.PR.9]: Require Amazon ECS services not to assign public IP addresses automatically
  [FIX]: Set 'AssignPublicIp' in 'NetworkConfiguration.AwsvpcConfiguration' to 'DISABLED'.
  >>
}

rule ecs_service_assign_public_ip_disabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ECS_SERVICE_TYPE) {
  check(%INPUT_DOCUMENT.%ECS_SERVICE_TYPE.resourceProperties)
  <<
  [CT.ECS.PR.9]: Require Amazon ECS services not to assign public IP addresses automatically
  [FIX]: Set 'AssignPublicIp' in 'NetworkConfiguration.AwsvpcConfiguration' to 'DISABLED'.
  >>
}
[FIX]: Set 'AssignPublicIp' in 'NetworkConfiguration.AwsvpcConfiguration' to 'DISABLED'.

```
}
```

# Parameterized Rules

rule check(ecs_service) {
  %ecs_service [filter_ecs_service_with_vpc_configuration(this)] {
    NetworkConfiguration {
      AwsvpcConfiguration {
        # Scenario 5
        AssignPublicIp not exists or
        # Scenario 6
        check_assign_public_ip_property(AssignPublicIp)
      }
    }
  }
}

rule check_assign_public_ip_property(public_ip) {
  %public_ip {
    this is_string
    this == "DISABLED"
  }
}

rule filter_ecs_service_with_vpc_configuration(ecs_service) {
  %ecs_service {
    # Scenario 2
    NetworkConfiguration exists
    NetworkConfiguration is_struct
    # Scenario 3 and 4
    NetworkConfiguration {
      AwsvpcConfiguration exists
      AwsvpcConfiguration is_struct
    }
  }
}

# Proactive controls
# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWS::TemplateFormatVersion exists or
    Resources exists
  }
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ECS.PR.9 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  SubnetOne:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
      AvailabilityZone:
        Fn::Select:
          - 0
          - Fn::GetAZs: ''
  SubnetTwo:
    Type: AWS::EC2::Subnet
    Properties:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Resources:

VPC:
   Type: AWS::EC2::VPC
   Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'

SubnetOne:
   Type: AWS::EC2::Subnet
   Properties:
      VpcId:
         Ref: VPC
      CidrBlock: 10.0.0.0/24
      AvailabilityZone:
         Fn::Select:
            - 0
            - Fn::GetAZs: ''

SubnetTwo:
   Type: AWS::EC2::Subnet
   Properties:
      VpcId:
         Ref: VPC
      CidrBlock: 10.0.1.0/24
      AvailabilityZone:
         Fn::Select:
            - 1
            - Fn::GetAZs: ''

ECSCluster:
   Type: AWS::ECS::Cluster
   Properties:
      CapacityProviders:
         - FARGATE

ECSTaskDefinition:
   Type: AWS::ECS::TaskDefinition
   Properties:
      ContainerDefinitions:
         - Essential: true
           Image: nginx:latest
           Name: SampleContainer
           Memory: '512'
      RequiresCompatibilities:
         - FARGATE
NetworkMode: awsvpc
Cpu: 256
ECSService:
  Type: AWS::ECS::Service
  Properties:
    Cluster:
      Ref: ECSCluster
    DesiredCount: 0
    TaskDefinition:
      Ref: ECSTaskDefinition
  NetworkConfiguration:
    AwsvpcConfiguration:
      AssignPublicIp: ENABLED
      Subnets:
        - Ref: SubnetOne
        - Ref: SubnetTwo
  LaunchType: FARGATE

[CT.ECS.PR.10] Require that Amazon ECS task definitions do not share the host's process namespace

This control checks whether Amazon Elastic Container Service (ECS) task definitions are configured to share a host's process namespace with its containers.

- **Control objective:** Protect configurations, Enforce least privilege
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECS::TaskDefinition
- **AWS CloudFormation guard rule:** [CT.ECS.PR.10 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECS.PR.10 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECS.PR.10 example templates](#)
Explanation

A process ID (PID) namespace provides separation between processes. It prevents system processes from being visible to other processes, and it allows PIDs to be reused, including PID 1. If the host's PID namespace is shared with containers, those containers can see all of the processes on the host system. Process visibility reduces the benefit of process-level isolation between the host and the containers. Reduced isolation can allow unauthorized access to processes on the host itself, including the ability to manipulate and terminate the host's processes. As a best practice, do not share the host's process namespace with containers running on the host.

Usage considerations

- This control applies only to Amazon ECS task definitions that are configured with container definitions.
- This control is not compatible with Amazon ECS task definitions that are configured to run on AWS Fargate, or definitions that use Windows containers.

Remediation for rule failure

Omit the PidMode property, or set PidMode to task.

The examples that follow show how to implement this remediation.

Amazon ECS Task Definition - Example One

Amazon ECS task definition configured with a task-level process namespace, by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.

JSON example

```json
{
    "TaskDefinition": {
        "Type": "AWS::ECS::TaskDefinition",
        "Properties": {
            "Memory": "512",
            "ContainerDefinitions": [
                {
                    "Essential": true,
```
The examples that follow show how to implement this remediation.

**Amazon ECS Task Definition - Example Two**

Amazon ECS task definition configured with a task-level process namespace, by means of the PidMode property. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "TaskDefinition": {
        "Type": "AWS::ECS::TaskDefinition",
        "Properties": {
            "Memory": "512",
            "ContainerDefinitions": [
                {"Essential": true,
                "Image": "nginx:latest",
                "Name": "SampleContainer"}
            ]
        }
    }
}
```

**YAML example**

```yaml
TaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    Memory: '512'
    ContainerDefinitions:
      - Essential: true
        Image: nginx:latest
        Name: SampleContainer
```

Proactive controls
YAML example

```yaml
TaskDefinition:
  Type: AWS::ECS::TaskDefinition
Properties:
  Memory: '512'
  ContainerDefinitions:
    - Essential: true
      Image: nginx:latest
      Name: SampleContainer
      PidMode: task
```

CT.ECS.PR.10 rule specification

```plaintext
# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   ecs_task_definition_pid_mode_check
#
# Description:
#   This control checks whether Amazon Elastic Container Service (ECS) task definitions
#   are configured to share a host's process namespace with its containers.
#
# Reports on:
#   AWS::ECS::TaskDefinition
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
```
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain an ECS task definition resource
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ECS task definition resource
#     And: 'PidMode' is provided as an empty string
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ECS task definition resource
#     And: 'PidMode' is set to 'host'
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ECS task definition resource
#     And: 'PidMode' is not present
#     Then: PASS
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ECS task definition resource
#     And: 'PidMode' is provided as a non-empty string that is not 'host'
#     Then: PASS
#
# Constants
#
let ECS_TASK_DEFINITION_TYPE = "AWS::ECS::TaskDefinition"
let INPUT_DOCUMENT = this

# Assignments
#
let ecs_task_definitions = Resources.*[ Type == %ECS_TASK_DEFINITION_TYPE ]
# Primary Rules

rule ecs_task_definition_pid_mode_check when is_cfn_template(%INPUT_DOCUMENT) %ecs_task_definitions not empty {
    check(%ecs_task_definitions.Properties)
    <<
    [CT.ECS.PR.10]: Require that Amazon ECS task definitions do not share the host's process namespace
    [FIX]: Omit the 'PidMode' property, or set 'PidMode' to 'task'.
    >>
}

rule ecs_task_definition_pid_mode_check when is_cfn_hook(%INPUT_DOCUMENT, %ECS_TASK_DEFINITION_TYPE) {
    check(%INPUT_DOCUMENT.%ECS_TASK_DEFINITION_TYPE.resourceProperties)
    <<
    [CT.ECS.PR.10]: Require that Amazon ECS task definitions do not share the host's process namespace
    [FIX]: Omit the 'PidMode' property, or set 'PidMode' to 'task'.
    >>
}

# Parameterized Rules

rule check(ecs_task_definition) {
    %ecs_task_definition {
        # Scenario 2
        PidMode not exists or
        # Scenario 3 and 4
        check_pidmode_value(PidMode)
    }
}

rule check_pidmode_value(pid_mode) {
    %pid_mode {
        check_is_string_and_not_empty(this)
        this != "host"
    }
}
CT.ECS.PR.10 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
TaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    Memory: '512'
    ContainerDefinitions:
      - Essential: true
        Image: nginx:latest
        Name: ExampleContainer
        PidMode: task
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  TaskDefinition:
    Type: AWS::ECS::TaskDefinition
    Properties:
      Memory: '512'
      ContainerDefinitions:
        - Essential: true
          Image: nginx:latest
          Name: ExampleContainer
          PidMode: host

[CT.ECS.PR.11] Require an Amazon ECS container to run as non-privileged

This control checks whether container definitions in Amazon Elastic Container Service (ECS) task definitions are configured with elevated privileges.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECS::TaskDefinition
- **AWS CloudFormation guard rule:** [CT.ECS.PR.11 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECS.PR.11 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECS.PR.11 example templates](#)

Explanation
We recommend that you remove elevated privileges from your Amazon ECS task definitions. When the privilege parameter is `true`, the container can operate with elevated privileges on the host container instance. These privileges are similar to the root user privileges.

**Usage considerations**

- This control applies only to Amazon ECS task definitions that are configured with container definitions.
- This control is incompatible with Amazon ECS task definitions that use Windows containers.

**Remediation for rule failure**

Be sure that all containers defined in `ContainerDefinitions` either omit the `Privileged` property, or that they set `Privileged` to `false`.

The examples that follow show how to implement this remediation.

**Amazon ECS Task Definition - Example**

Amazon ECS task definition configured with privileged mode deactivated for container definitions. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ECSTaskDefinition": {
      "Type": "AWS::ECS::TaskDefinition",
      "Properties": {
         "ContainerDefinitions": [
            {
               "Essential": true,
               "Image": "alpine:latest",
               "Name": "SampleContainerA"
            },
            {
               "Image": "nginx:latest",
               "Name": "SampleContainerB",
               "Privileged": false
            }
         ]
      }
   }
}
```
```json
{
    "Essential": false,
    "Image": "alpine:latest",
    "Name": "SampleContainerA"
}
{
    "Essential": false,
    "Image": "nginx:latest",
    "Name": "SampleContainerB"

    "Privileged": false,
    "Memory": "512"
}
```

**YAML example**

```yaml
ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    ContainerDefinitions:
    - Essential: true
      Image: alpine:latest
      Name: SampleContainerA
    - Image: nginx:latest
      Name: SampleContainerB
      Privileged: false
      Memory: '512'
```

**CT.ECS.PR.11 rule specification**

```
# #####################################################################
# Rule Specification          #
# #####################################################################
# Rule Identifier:
#  ecs_containers_nonprivileged_check
# Description:
#  This control checks whether container definitions in Amazon Elastic Container
#  Service (ECS) task definitions are configured with elevated privileges.
# Reports on:
#  AWS::ECS::TaskDefinition
# Evaluates:
```
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain an ECS task definition resource
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ECS task definition resource
# And: 'ContainerDefinitions' property is not present or is an empty list
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ECS task definition resource
# And: 'ContainerDefinitions' property is present
# And: One or more containers defined in 'ContainerDefinitions' have 'Privileged' set to bool(true)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ECS task definition resource
# And: 'ContainerDefinitions' property is present
# And: All containers defined in 'ContainerDefinitions' either do not have the 'Privileged' property present or 'Privileged' is present and set to bool(false)
# Then: PASS
#
# Constants
#
let ECS_TASK_DEFINITION_TYPE = "AWS::ECS::TaskDefinition"
let INPUT_DOCUMENT = this
#
# Assignments
#
let ecs_task_definitions = Resources.*[ Type == %ECS_TASK_DEFINITION_TYPE ]

# Primary Rules
#
rule ecs_containers_nonprivileged_check when is_cfn_template(%INPUT_DOCUMENT)
  %ecs_task_definitions not empty {
    check(%ecs_task_definitions.Properties)
    <<
    [CT.ECS.PR.11]: Require an Amazon ECS container to run as non-privileged
    [FIX]: Be sure that all containers defined in 'ContainerDefinitions' either
    omit the 'Privileged' property, or that they set 'Privileged' to 'false'.
    >>
  }
rule ecs_containers_nonprivileged_check when is_cfn_hook(%INPUT_DOCUMENT, %ECS_TASK_DEFINITION_TYPE) {
  check(%INPUT_DOCUMENT.%ECS_TASK_DEFINITION_TYPE.resourceProperties)
  <<
  [CT.ECS.PR.11]: Require an Amazon ECS container to run as non-privileged
  [FIX]: Be sure that all containers defined in 'ContainerDefinitions' either
  omit the 'Privileged' property, or that they set 'Privileged' to 'false'.
  >>
}

# Parameterized Rules
#
rule check(ecs_task_definition) {
  %ecs_task_definition 
  filter_container_definitions_is_present(this)
  ]{
    ContainerDefinitions[*] {
      # Scenario 3
      Privileged not exists or

      # Scenario 4
      Privileged == false
    }
  }
}
rule filter_container_definitions_is_present(ecs_task_definition) {
  %ecs_task_definition {
  

# Scenario 2
ContainerDefinitions exists
ContainerDefinitions is_list
ContainerDefinitions not empty
}
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ECS.PR.11 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  ECSTaskDefinition:
    Type: AWS::ECS::TaskDefinition
    Properties:
      ContainerDefinitions:
        - Essential: true
          Image: alpine:latest
          Name: ExampleContainerA
        - Image: nginx:latest
          Name: ExampleContainerB
          Privileged: false
          Memory: '512'
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    ContainerDefinitions:
    - Essential: true
      Image: nginx:latest
      Name: ExampleContainerA
      Privileged: false
    - Essential: true
      Image: alpine:latest
      Name: ExampleContainerB
    - Image: nginx:latest
      Name: ExampleContainerC
      Privileged: true
    Memory: '512'

[CT.ECS.PR.12] Require that Amazon ECS task definitions do not pass secrets as container environment variables

This control checks whether Amazon Elastic Container Service (ECS) task definition container definitions include environment variables named AWS_ACCESS_KEY_ID, AWS_SECRET_ACCESS_KEY, or ECS_ENGINE_AUTH_DATA.

- **Control objective:** Use strong authentication
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ECS::TaskDefinition
- **AWS CloudFormation guard rule:** [CT.ECS.PR.12 rule specification](#)

Details and examples
For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ECS.PR.12 rule specification](#)

For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ECS.PR.12 example templates](#)

**Explanation**

AWS Systems Manager Parameter Store can help you improve the security posture of your organization. We recommend the Parameter Store as a way to store secrets and credentials, instead of passing them into your container instances or entering them into your source code.

### Usage considerations

- This control applies only to Amazon ECS task definitions that are configured with container definitions.
- This control evaluates plaintext environment variables configured directly on container definitions.

### Remediation for rule failure

Omit environment variables with Name set to AWS_ACCESS_KEY_ID, AWS_SECRET_ACCESS_KEY or ECS_ENGINE_AUTH_DATA from container definitions.

The examples that follow show how to implement this remediation.

**Amazon ECS Task Definition - Example**

Amazon ECS task definition configured to inject sensitive data into a container as an environment variable. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ECSTaskDefinition": {
      "Type": "AWS::ECS::TaskDefinition",
      "Properties": {
         "Memory": "512",
```
"ExecutionRoleArn": {
  "Fn::GetAtt": [
    "ECSTaskExecutionRole",
    "Arn"
  ]
},
"ContainerDefinitions": [
{
  "Essential": true,
  "Image": "nginx:latest",
  "Name": "SampleContainer",
  "Environment": [
    {
      "Name": "SAMPLE_ENV_VAR",
      "Value": "sampleValue"
    }
  ],
  "Secrets": [
    {
      "Name": "SAMPLE_SENSITIVE_ENV_VAR",
      "ValueFrom": "arn:aws:ssm:us-east-1:123456789012:parameter/sample_parameter"
    }
  ]
}
]
}
Environment:
- Name: SAMPLE_ENV_VAR
  Value: sampleValue

Secrets:
- Name: SAMPLE_SENSITIVE_ENV_VAR
  ValueFrom: arn:aws:ssm:us-east-1:123456789012:parameter/sample_parameter

CT.ECS.PR.12 rule specification

# ##################################################################
##       Rule Specification        ##
##################################################################
#
# Rule Identifier:
#   ecs_no_environment_secrets_check
#
# Description:
#   This control checks whether Amazon Elastic Container Service (ECS) task definition
#   container definitions include environment variables named 'AWS_ACCESS_KEY_ID',
#   'AWS_SECRET_ACCESS_KEY', or 'ECS_ENGINE_AUTH_DATA'.
#
# Reports on:
#   AWS::ECS::TaskDefinition
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
# Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document does not contain an ECS task definition resource
#   Then: SKIP
# Scenario: 2
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an ECS task definition resource

Proactive controls
# And: 'ContainerDefinitions' property is not present or is empty
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an ECS task definition resource
# And: 'ContainerDefinitions' property is present
# And: Containers defined in 'ContainerDefinitions' do not have 'Environment'
# property present
# Then: SKIP
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an ECS task definition resource
# And: 'ContainerDefinitions' property is present
# And: One or more containers defined in 'ContainerDefinitions' have 'Environment'
# present
# And: 'Environment' property has an entry with 'Name' set to 'AWS_ACCESS_KEY_ID',
# 'AWS_SECRET_ACCESS_KEY', or
#   'ECS_ENGINE_AUTH_DATA'
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an ECS task definition resource
# And: 'ContainerDefinitions' property is present
# And: One or more containers defined in 'ContainerDefinitions' have 'Environment'
# present
# And: 'Environment' property does not have an entry with 'Name' set to
# 'AWS_ACCESS_KEY_ID', 'AWS_SECRET_ACCESS_KEY',
# or 'ECS_ENGINE_AUTH_DATA'
# Then: PASS

# Constants
#
let ECS_TASK_DEFINITION_TYPE = "AWS::ECS::TaskDefinition"
let INPUT_DOCUMENT = this
let RESTRICTED_ENVIRONMENT_VARIABLES = ["AWS_ACCESS_KEY_ID", "AWS_SECRET_ACCESS_KEY",
  "ECS_ENGINE_AUTH_DATA"]
let ecs_task_definitions = Resources.*[ Type == %ECS_TASK_DEFINITION_TYPE ]

# Primary Rules
#
rule ecs_no_environment_secrets_check when is_cfn_template(%INPUT_DOCUMENT)
   %ecs_task_definitions not empty {
      check(%ecs_task_definitions.Properties)
      <<
      [CT.ECS.PR.12]: Require that Amazon ECS task definitions do not pass secrets as container environment variables
      [FIX]: Omit environment variables with 'Name' set to 'AWS_ACCESS_KEY_ID', 'AWS_SECRET_ACCESS_KEY' or 'ECS_ENGINE_AUTH_DATA' from container definitions.
      >>
   }

rule ecs_no_environment_secrets_check when is_cfn_hook(%INPUT_DOCUMENT, %ECS_TASK_DEFINITION_TYPE) {
   check(%INPUT_DOCUMENT.%ECS_TASK_DEFINITION_TYPE.resourceProperties)
   <<
   [CT.ECS.PR.12]: Require that Amazon ECS task definitions do not pass secrets as container environment variables
   [FIX]: Omit environment variables with 'Name' set to 'AWS_ACCESS_KEY_ID', 'AWS_SECRET_ACCESS_KEY' or 'ECS_ENGINE_AUTH_DATA' from container definitions.
   >>
}

# Parameterized Rules
#
rule check(ecs_task_definition) {
   %ecs_task_definition [
      filter_container_definitions_is_present(this)
   ]{
      ContainerDefinitions[
         filter_environment_is_present(this)
      ] {
         # Scenario 4 and 5
         Environment[*] {
            Name not in %RESTRICTED_ENVIRONMENT_VARIABLES
         }
      }
   }
}
```ruby
rule filter_container_definitions_is_present(ecs_task_definition) {
  %ecs_task_definition {
    # Scenario 2
    ContainerDefinitions exists
    ContainerDefinitions is_list
    ContainerDefinitions not empty
  }
}

rule filter_environment_is_present(container_definition) {
  %container_definition {
    # Scenario 3
    Environment exists
    Environment is_list
    Environment not empty
  }
}

# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

**CT.ECS.PR.12 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:** 1245
ECSTaskExecutionRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service:
              - ecs-tasks.amazonaws.com
          Action:
            - sts:AssumeRole
          Path: /
    ManagedPolicyArns:
      - arn:aws:iam::aws:policy/service-role/AmazonECSTaskExecutionRolePolicy
    Policies:
      - PolicyName: ECSTaskPolicy
        PolicyDocument:
          Version: '2012-10-17'
          Statement:
            - Effect: Allow
              Action:
                - ssm:GetParameters
              Resource: arn:aws:ssm:us-east-1:123456789012:parameter/example_parameter

ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    Memory: '512'
    ExecutionRoleArn:
      Fn::GetAtt: [ ECSTaskExecutionRole, Arn ]
    ContainerDefinitions:
      - Essential: true
        Image: nginx:latest
        Name: ExampleContainer
        Environment:
          - Name: EXAMPLE_ENV_VAR
            Value: exampleValue
        Secrets:
          - Name: EXAMPLE_SENSITIVE_ENV_VAR
            ValueFrom: arn:aws:ssm:us-east-1:123456789012:parameter/example_parameter

Proactive controls
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ECSTaskDefinition:
  Type: AWS::ECS::TaskDefinition
  Properties:
    Memory: '512'
    ContainerDefinitions:
      - Essential: true
        Image: nginx:latest
        Name: ExampleContainerA
        Environment:
          - Name: AWS_ACCESS_KEY_ID
            Value: exampleKey
          - Name: AWS_SECRET_ACCESS_KEY
            Value: exampleSecretKey
          - Image: alpine:latest
            Name: ExampleContainerB

Amazon Elastic File System controls

Topics
- [CT.ELASTICFILESYSTEM.PR.1] Require an Amazon EFS file system to encrypt file data at rest using AWS KMS
- [CT.ELASTICFILESYSTEM.PR.2] Require an Amazon EFS volume to have an automated backup plan
- [CT.ELASTICFILESYSTEM.PR.3] Require Amazon EFS access points to have a root directory
- [CT.ELASTICFILESYSTEM.PR.4] Require Amazon EFS access points to enforce a user identity

[CT.ELASTICFILESYSTEM.PR.1] Require an Amazon EFS file system to encrypt file data at rest using AWS KMS

This control checks whether an Amazon Elastic File System (Amazon EFS) file system is configured to encrypt file data using AWS KMS.

• Control objective: Encrypt data at rest
• **Implementation:** AWS CloudFormation Guard Rule
• **Control behavior:** Proactive
• **Resource types:** AWS::EFS::FileSystem
• **AWS CloudFormation guard rule:** CT.ELASTICFILESYSTEM.PR.1 rule specification

Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.ELASTICFILESYSTEM.PR.1 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.ELASTICFILESYSTEM.PR.1 example templates

Explanation

For an added layer of security for your sensitive data in Amazon EFS, you should create encrypted file systems. Amazon EFS supports encryption for file systems at rest. You can enable encryption of data at rest when you create an Amazon EFS file system.

° **Usage considerations**

• This control requires only the Encrypted property to be set to true, and it does not require the KmsKeyId property to be provided.
• If the KmsKeyId property is not provided, the default AWS KMS key for Amazon EFS, /aws/elasticfilesystem, is used to protect the encrypted file system.

Remediation for rule failure

Set Encrypted to true and optionally set KmsKeyId to a valid AWS KMS key identifier.

The examples that follow show how to implement this remediation.

Amazon EFS File System - Example One

Amazon EFS file system configured with encryption enabled, by means of the default AWS KMS key for Amazon EFS. The example is shown in JSON and in YAML.

**JSON example**
The examples that follow show how to implement this remediation.

**Amazon EFS File System - Example Two**

Amazon EFS file system configured with encryption enabled, by means of a customer-managed AWS KMS key. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "EFSFileSystem": {
        "Type": "AWS::EFS::FileSystem",
        "Properties": {
            "Encrypted": true,
            "KmsKeyId": {
                "Ref": "KMSKey"
            }
        }
    }
}
```

**YAML example**

```yaml
EFSFileSystem:
  Type: AWS::EFS::FileSystem
  Properties:
    Encrypted: true
    KmsKeyId:
      Ref: KMSKey
```

Proactive controls
YAML example

EFSFileSystem:
  Type: AWS::EFS::FileSystem
  Properties:
    Encrypted: true
    KmsKeyId: !Ref 'KMSKey'

CT.ELASTICFILESYSTEM.PR.1 rule specification

# ###################################################################
##       Rule Specification        ##
# ###################################################################
# Rule Identifier:
#   efs_encrypted_check
#
# Description:
#   This control checks whether an Amazon Elastic File System (Amazon EFS) file system
#   is configured to encrypt file data using AWS KMS.
#
# Reports on:
#   AWS::EFS::FileSystem
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Amazon EFS file system resources
#     Then: SKIP
#   Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EFS file system resource
And: 'Encrypted' is not present
Then: FAIL

Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EFS file system resource
And: 'Encrypted' is present and set to bool(false)
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon EFS file system resource
And: 'Encrypted' is present and set to bool(true)
Then: PASS

# Constants

let RESOURCE_TYPE = "AWS::EFS::FileSystem"
let INPUT_DOCUMENT = this

# Assignments

let efs_file_systems = Resources.*[ Type == %RESOURCE_TYPE ]

# Primary Rules

rule efs_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
%efs_file_systems not empty {
  check(%efs_file_systems.Properties) <<
  [CT.ELASTICFILESYSYSTEM.PR.1]: Require an Amazon EFS file system to encrypt file data at rest using AWS KMS
  [FIX]: Set 'Encrypted' to 'true' and optionally set 'KmsKeyId' to a valid AWS KMS key identifier.
  >>
}

rule efs_encrypted_check when is_cfn_hook(%INPUTDOCUMENT, %RESOURCE_TYPE) {
Check(AWSControlTower::RESOURCE_TYPE.resourceProperties)

\[CT.ELASTICFILESYSYSTEM.PR.1\]: Require an Amazon EFS file system to encrypt
file data at rest using AWS KMS

\[FIX\]: Set 'Encrypted' to 'true' and optionally set 'KmsKeyId' to a valid AWS
KMS key identifier.

}>

# Parameterized Rules

rule check(efs_file_systems) {
  %efs_file_systems {
    # Scenario 2
    Encrypted exists
    # Scenario 3 and 4
    Encrypted == true
  }
}

# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ELASTICFILESYSYSTEM.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive
controls.

PASS Example - Use this template to verify a compliant resource creation.
[CT.ELASTICFILESYSTEM.PR.2] Require an Amazon EFS volume to have an automated backup plan

This control checks whether your Amazon Elastic File System (Amazon EFS) file system has been configured with automatic backups through AWS Backup.

- **Control objective:** Improve resiliency
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EFS::FileSystem
- **AWS CloudFormation guard rule:** [CT.ELASTICFILESYSTEM.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICFILESYSTEM.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICFILESYSTEM.PR.2 example templates](#)
Explanation

Including Amazon EFS file systems in the backup plans helps you to protect your data from deletion and data loss.

Remediation for rule failure

Enable automatic backups by setting `BackupPolicy.Status` to `ENABLED`.

The examples that follow show how to implement this remediation.

Amazon EFS File System - Example

Amazon EFS file system configured with automatic backups enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
  "EFSFileSystem": {
    "Type": "AWS::EFS::FileSystem",
    "Properties": {
      "BackupPolicy": {
        "Status": "ENABLED"
      }
    }
  }
}
```

YAML example

```yaml
EFSFileSystem:
  Type: AWS::EFS::FileSystem
  Properties:
    BackupPolicy:
      Status: ENABLED
```
# Rule Specification

## Rule Identifier:

`efs_automatic_backups_enabled_check`

## Description:

This control checks whether your Amazon Elastic File System (Amazon EFS) file system has been configured with automatic backups through AWS Backup.

## Reports on:

`AWS::EFS::FileSystem`

## Evaluates:

AWS CloudFormation, AWS CloudFormation hook

## Rule Parameters:

None

## Scenarios:

1. **Scenario: 1**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   - And: The input document does not contain any Amazon EFS file system resources
   - Then: SKIP

2. **Scenario: 2**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   - And: The input document contains an Amazon EFS file system resource
   - And: 'BackupPolicy' is not present
   - Then: FAIL

3. **Scenario: 3**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   - And: The input document contains an Amazon EFS file system resource
   - And: 'BackupPolicy' is present and 'Status' is set to 'DISABLED'
   - Then: FAIL

4. **Scenario: 4**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

Proactive controls
# The input document contains an Amazon EFS file system resource
# 'BackupPolicy' is present and 'Status' is set to 'ENABLED'
# Then: PASS

# Constants
#
let RESOURCE_TYPE = "AWS::EFS::FileSystem"
let INPUT_DOCUMENT = this

# Assignments
#
let efs_file_systems = Resources.*[ Type == %RESOURCE_TYPE ]

# Primary Rules
#
rule efs_automatic_backups_enabled_check when is_cfn_template(this)
%efs_file_systems not empty {
    check(%efs_file_systems.Properties)
    %efs_file_systems not empty {
        [CT.ELASTICFILESYSTEM.PR.2]: Require an Amazon EFS volume to have an
        automated backup plan
        [FIX]: Enable automatic backups by setting 'BackupPolicy.Status' to 'ENABLED'.
    }
}

rule efs_automatic_backups_enabled_check when is_cfn_hook(%INPUT_DOCUMENT,
%RESOURCE_TYPE) {
    check(%INPUT_DOCUMENT.%RESOURCE_TYPE.resourceProperties)
    %INPUT_DOCUMENT.%RESOURCE_TYPE.resourceProperties {
        [CT.ELASTICFILESYSTEM.PR.2]: Require an Amazon EFS volume to have an
        automated backup plan
        [FIX]: Enable automatic backups by setting 'BackupPolicy.Status' to 'ENABLED'.
    }
}

# Parameterized Rules
#
rule check(efs_file_systems) {
    %efs_file_systems {

# Scenario 2
BackupPolicy exists
BackupPolicy is_struct
BackupPolicy {
    # Scenario 3 and 4
    Status exists
    Status == "ENABLED"
}
}

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ELASTICFILESYSTEM.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
EFSFileSystem:
    Type: AWS::EFS::FileSystem
Properties:
    BackupPolicy:
        Status: ENABLED
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
EFSFileSystem:
    Type: AWS::EFS::FileSystem
Properties:
    BackupPolicy:
        Status: DISABLED

[CT.ELASTICFILESYSTEM.PR.3] Require Amazon EFS access points to have a root directory

This control checks whether your Amazon Elastic File System (Amazon EFS) access points are configured to enforce a root directory.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EFS::AccessPoint
- **AWS CloudFormation guard rule:** [CT.ELASTICFILESYSTEM.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICFILESYSTEM.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICFILESYSTEM.PR.3 example templates](#)

**Explanation**

When you enforce a root directory, the NFS client at the access point uses the root directory configured on the access point, instead of the file system's root directory. Enforcing a root directory for an access point helps restrict data access by ensuring that users of the access point can reach only the files of the specified subdirectory.
Remediation for rule failure

Provide a RootDirectory.Path configuration with a value for Path that does not equal /.

The examples that follow show how to implement this remediation.

Amazon EFS Access Point - Example

Amazon EFS access point configured with a root directory set to a specific subdirectory. The example is shown in JSON and in YAML.

JSON example

```
{
    "EFSAccessPoint": {
        "Type": "AWS::EFS::AccessPoint",
        "Properties": {
            "FileSystemId": {
                "Ref": "EFSFileSystem"
            },
            "RootDirectory": {
                "Path": "/dir1/child1"
            }
        }
    }
}
```

YAML example

```
EFSAccessPoint:
  Type: AWS::EFS::AccessPoint
  Properties:
    FileSystemId: !Ref 'EFSFileSystem'
    RootDirectory:
      Path: /dir1/child1
```
CT.ELASTICFILESYSTEM.PR.3 rule specification

# ###################################################################
##       Rule Specification        ##
###################################################################
#
# Rule Identifier:
#   efs_access_point_enforce_root_directory_check
#
# Description:
#   This control checks whether your Amazon Elastic File System (Amazon EFS) access
#   points are configured to enforce a root directory.
#
# Reports on:
#   AWS::EFS::AccessPoint
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Amazon EFS access point resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon EFS access point resource
#     And: 'RootDirectory' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon EFS access point resource
#     And: 'RootDirectory' has been provided
#     And: 'Path' within 'RootDirectory' has not been provided or has been provided
#          with an empty string value
#     Then: FAIL
#   Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#      And: The input document contains an Amazon EFS access point resource
#      And: 'RootDirectory' has been provided
#      And: 'Path' within 'RootDirectory' been provided with a value of '/'
#      Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#      And: The input document contains an Amazon EFS access point resource
#      And: 'RootDirectory' has been provided
#      And: 'Path' within 'RootDirectory' been provided with a non-empty string value not equal to '/'
#      Then: PASS

# Constants
#
let EFS_ACCESS_POINT_TYPE = "AWS::EFS::AccessPoint"
let INPUT_DOCUMENT = this
#
# Assignments
#
let efs_access_points = Resources.*[ Type == %EFS_ACCESS_POINT_TYPE ]
#
# Primary Rules
#
rule efs_access_point_enforce_root_directory_check when is_cfn_template(%INPUT_DOCUMENT)
  %efs_access_points not empty {
    check(%efs_access_points.Properties)
    <<
    [CT.ELASTICFILESYSYSTEM.PR.3]: Require Amazon EFS access points to have a root directory
    [FIX]: Provide a 'RootDirectory.Path' configuration with a value for 'Path' that does not equal '/'.
    >>
  }
rule efs_access_point_enforce_root_directory_check when is_cfn_hook(%INPUT_DOCUMENT, %EFS_ACCESS_POINT_TYPE) {
  check(%INPUT_DOCUMENT.%EFS_ACCESS_POINT_TYPE.resourceProperties)
[CT.ELASTICFILESYSTEM.PR.3]: Require Amazon EFS access points to have a root directory

[FIX]: Provide a 'RootDirectory.Path' configuration with a value for 'Path' that does not equal '/'.

```
rule check(efs_access_points) {
  %efs_access_points {
    # Scenario 2
    RootDirectory exists
    RootDirectory {
      # Scenario 3, 4 and 5
      Path exists
      check_is_string_and_not_empty(Path)
      Path != "/
  }
}
```

```
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

```
rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /[A\s]*$/
  }
}
```
CT.ELASTICFILESYSTEM.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
EFSAccessPoint:
    Type: AWS::EFS::AccessPoint
    Properties:
        FileSystemId:
            Ref: EFSFileSystem
        RootDirectory:
            Path: /dir1/child1
EFSFileSystem:
    Type: AWS::EFS::FileSystem
    Properties: {}

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
EFSAccessPoint:
    Type: AWS::EFS::AccessPoint
    Properties:
        FileSystemId:
            Ref: EFSFileSystem
        RootDirectory:
            Path: /
EFSFileSystem:
    Type: AWS::EFS::FileSystem
    Properties: {}
[CT.ELASTICFILESYSTEM.PR.4] Require Amazon EFS access points to enforce a user identity

This control checks whether your Amazon Elastic File System (Amazon EFS) access points are configured to enforce a user identity.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EFS::AccessPoint
- **AWS CloudFormation guard rule:** [CT.ELASTICFILESYSTEM.PR.4 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICFILESYSTEM.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICFILESYSTEM.PR.4 example templates](#)

Explanation

Amazon EFS access points are application-specific entry points into an Amazon EFS file system that make it easier to manage application access to shared datasets. Access points can enforce a user identity, including the user's POSIX groups, for all file system requests that are made through the access point. Access points also can enforce a different root directory for the file system, so that clients gain access only to data in the specified directory or its subdirectories.

Remediation for rule failure

Provide a PosixUser configuration with a POSIX user ID (Uid) and POSIX group ID (Gid).

The examples that follow show how to implement this remediation.

**Amazon EFS Access Point - Example**

Amazon EFS access point configured to enforce a user identity for all file system requests made through the access point. The example is shown in JSON and in YAML.

**JSON example**
YAML example

EFSAccessPoint:
  Type: AWS::EFS::AccessPoint
  Properties:
    FileSystemId: !Ref 'EFSFileSystem'
    PosixUser:
      Uid: '111'
      Gid: '222'

CT.ELASTICFILESYSTEM.PR.4 rule specification

# #####################################################################
##        Rule Specification        ##
# Rule Identifier:
#   efs_access_point_enforce_user_identity_check
# Description:
#   This control checks whether your Amazon Elastic File System (Amazon EFS) access points are configured to enforce a user identity.

# Reports on:
#   AWS::EFS::AccessPoint
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#         And: The input document does not contain any Amazon EFS access point resources
#         Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#         And: The input document contains an Amazon EFS access point resource
#         And: 'PosixUser' has not been provided
#         Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#         And: The input document contains an Amazon EFS access point resource
#         And: 'PosixUser' has been provided
#         And: 'Uid' within 'PosixUser' has not been provided or has been provided with an empty string value
#         And: 'Gid' within 'PosixUser' has not been provided or has been provided with an empty string value
#         Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#         And: The input document contains an Amazon EFS access point resource
#         And: 'PosixUser' has been provided
#         And: 'Uid' within 'PosixUser' has been provided with a non-empty string value
#         And: 'Gid' within 'PosixUser' has been provided with a non-empty string value
#         Then: PASS

# Constants

let EFS_ACCESS_POINT_TYPE = "AWS::EFS::AccessPoint"
let INPUT_DOCUMENT = this

# # Assignments
#
let efs_access_points = Resources.*[ Type == %EFS_ACCESS_POINT_TYPE ]

# # Primary Rules
#
rule efs_access_point_enforce_user_identity_check when is_cfn_template(this)
%efs_access_points not empty {
    check(%efs_access_points.Properties)
    %efs_access_points not empty {
        [CT.ELASTICFILESYSYSTEM.PR.4]: Require Amazon EFS access points to enforce a user identity
        [FIX]: Provide a 'PosixUser' configuration with a POSIX user ID ('Uid') and POSIX group ID ('Gid').
    }
}

rule efs_access_point_enforce_user_identity_check when is_cfn_hook(%INPUT_DOCUMENT, %EFS_ACCESS_POINT_TYPE) {
    check(%INPUT_DOCUMENT.%EFS_ACCESS_POINT_TYPE.resourceProperties)
    [CT.ELASTICFILESYSYSTEM.PR.4]: Require Amazon EFS access points to enforce a user identity
    [FIX]: Provide a 'PosixUser' configuration with a POSIX user ID ('Uid') and POSIX group ID ('Gid').
}

# # Parameterized Rules
#
rule check(efs_access_points) {
    %efs_access_points {
        # Scenario 2
        PosixUser exists
        PosixUser {
            # Scenario 3 and 4
            Uid exists
            check_is_string_and_not_empty(Uid)
        }
Gid exists
   check_is_string_and_not_empty(Gid)
}
]
]
#
# Utility Rules
#
rule is_cfn_template(doc) {
   %doc {
      AWSTemplateFormatVersion exists or
      Resources exists
   }
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
   %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
   %value {
      this is_string
      this != /\A\s*\z/
   }
}

CT.ELASTICFILESYSTEM.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
   EFSAccessPoint:
      Type: AWS::EFS::AccessPoint
      Properties:
         FileSystemId:
            Ref: EFSFileSystem
         PosixUser:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Amazon Elastic Kubernetes Service (EKS) controls

Topics

- [CT.EKS.PR.1] Require an Amazon EKS cluster to be configured with public access disabled to the cluster Kubernetes API server endpoint
- [CT.EKS.PR.2] Require an Amazon EKS cluster to be configured with secret encryption using AWS Key Management Service (KMS) keys

[CT.EKS.PR.1] Require an Amazon EKS cluster to be configured with public access disabled to the cluster Kubernetes API server endpoint

This control checks whether an Amazon Elastic Kubernetes Service (EKS) cluster endpoint disallows public access to the cluster Kubernetes API server endpoint.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation guard rule
• **Control behavior:** Proactive

• **Resource types:** AWS::EKS::Cluster

• **AWS CloudFormation guard rule:** [CT.EKS.PR.1 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EKS.PR.1 rule specification](#)

• For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.EKS.PR.1 example templates](#)

**Explanation**

When you create a new cluster, Amazon Elastic Kubernetes Service (EKS) creates an endpoint for the managed Kubernetes API server, which you can use to communicate with your cluster using Kubernetes management tools, such as kubectl. By default, this API server endpoint is public to the internet, and access to the API server is secured using a combination of AWS Identity and Access Management (IAM) along with native Kubernetes Role-Based Access Control (RBAC). Enabling private access to the Kubernetes API server ensures that all communication between your nodes and the API server stays within your VPC. You can limit the IP addresses that have access to your API server from the internet, or you can completely disallow internet access to the API server.

**Remediation for rule failure**

Set the value of the `EndpointPublicAccess` parameter to false and the value of the `EndpointPrivateAccess` parameter to true.

The examples that follow show how to implement this remediation.

**Amazon EKS Cluster - Example**

An Amazon EKS cluster configured with public access disabled to the cluster's Kubernetes API server endpoint. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "EKSCluster": {
      "Type": "AWS::EKS::Cluster",
```
"Properties": {
  "RoleArn": {
    "Fn::GetAtt": "EKSClusterRole.Arn"
  },
  "ResourcesVpcConfig": {
    "SubnetIds": [
      {
        "Ref": "SubnetOne"
      },
      {
        "Ref": "SubnetTwo"
      }
    ],
    "EndpointPublicAccess": false,
    "EndpointPrivateAccess": true
  }
}

YAML example

EKSCluster:
  Type: AWS::EKS::Cluster
  Properties:
    RoleArn: !GetAtt 'EKSClusterRole.Arn'
    ResourcesVpcConfig:
      SubnetIds:
        - !Ref 'SubnetOne'
        - !Ref 'SubnetTwo'
      EndpointPublicAccess: false
      EndpointPrivateAccess: true

CT.EKS.PR.1 rule specification

# ##########################################################################
##       Rule Specification       ##
##########################################################################

Proactive controls
# Rule Identifier:
#   eks_endpoint_no_public_access_check
#
# Description:
#   This control checks whether an Amazon Elastic Kubernetes Service (EKS) cluster
#   endpoint disallows public access to the cluster Kubernetes API server endpoint.
#
# Reports on:
#   AWS::EKS::Cluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Amazon EKS cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon EKS cluster resource
#     And: 'EndpointPublicAccess' in 'ResourcesVpcConfig' has not been provided
#     And: 'EndpointPrivateAccess' in 'ResourcesVpcConfig' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon EKS cluster resource
#     And: 'EndpointPrivateAccess' in 'ResourcesVpcConfig' has not been provided
#     And: 'EndpointPublicAccess' in 'ResourcesVpcConfig' has not been provided or
#          has been provided and set to a
#          value other than bool(false)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon EKS cluster resource
And: 'EndpointPublicAccess' in 'ResourcesVpcConfig' has not been provided or has been provided and set to a value other than bool(false)
#       And: 'EndpointPrivateAccess' in 'ResourcesVpcConfig' has been provided and set to bool(true)
#      Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains an Amazon EKS cluster resource
#       And: 'EndpointPublicAccess' in 'ResourcesVpcConfig' has been provided and set to bool(false)
#       And: 'EndpointPrivateAccess' in 'ResourcesVpcConfig' has been provided and set to bool(true)
#      Then: PASS

# # Constants
#
let EKS_CLUSTER_TYPE = "AWS::EKS::Cluster"
let INPUT_DOCUMENT = this

# # Assignments
#
let eks_clusters = Resources.*[ Type == %EKS_CLUSTER_TYPE ]

# # Primary Rules
#
rule eks_endpoint_no_public_access_check when is_cfn_template(%INPUT_DOCUMENT)
%eks_clusters not empty {
  check(%eks_clusters.Properties)
  \<<
  [CT.EKS.PR.1]: Require an Amazon EKS cluster to be configured with public access disabled to the cluster Kubernetes API server endpoint.
  [FIX]: Set the value of the 'EndpointPublicAccess' parameter to false and the value of the 'EndpointPrivateAccess' parameter to true.
  \>>
}

rule eks_endpoint_no_public_access_check when is_cfn_hook(%INPUT_DOCUMENT, %EKS_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%EKS_CLUSTER_TYPE.resourceProperties)
[CT.EKS.PR.1]: Require an Amazon EKS cluster to be configured with public access disabled to the cluster Kubernetes API server endpoint.

[FIX]: Set the value of the 'EndpointPublicAccess' parameter to false and the value of the 'EndpointPrivateAccess' parameter to true.

```
rule check(eks_cluster) {
  %eks_cluster {
    ResourcesVpcConfig exists
    ResourcesVpcConfig is_struct
    ResourcesVpcConfig {
      # Scenarios 2, 3, 4 and 5
      EndpointPublicAccess exists
      EndpointPublicAccess == false

      EndpointPrivateAccess exists
      EndpointPrivateAccess == true
    }
  }
}
```

# # Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.EKS.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  SubnetOne:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
      AvailabilityZone:
        Fn::Select:
        - 0
        - Fn::GetAZs: ''
  SubnetTwo:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.1.0/24
      AvailabilityZone:
        Fn::Select:
        - 1
        - Fn::GetAZs: ''
  EKSClusterRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
        - Effect: Allow
          Principal:
            Service: eks.amazonaws.com
```
Action: sts:AssumeRole
Path: /
ManagedPolicyArns:
  - arn:aws:iam::aws:policy/AmazonEKSClusterPolicy

EKSCluster:
  Type: AWS::EKS::Cluster
  Properties:
    RoleArn:
      Fn::GetAtt: EKSClusterRole.Arn
  ResourcesVpcConfig:
    SubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo
    EndpointPublicAccess: false
    EndpointPrivateAccess: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  SubnetOne:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
      AvailabilityZone:
        Fn::Select:
        - 0
        - Fn::GetAZs: ''
  SubnetTwo:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
[CT.EKS.PR.2] Require an Amazon EKS cluster to be configured with secret encryption using AWS Key Management Service (KMS) keys

This control checks whether Amazon Elastic Kubernetes Service (Amazon EKS) clusters are configured to use Kubernetes secrets encrypted with AWS Key Management Service (KMS) keys.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
• **Resource types:** AWS::EKS::Cluster

• **AWS CloudFormation guard rule:** [CT.EKS.PR.2 rule specification](#)

## Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EKS.PR.2 rule specification](#)

• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EKS.PR.2 example templates](#)

## Explanation

Kubernetes secrets store sensitive information, such as user certificates, passwords, or API keys. Encrypting Kubernetes secrets at rest bolsters the security of your EKS clusters.

## Usage considerations

- For a cluster that uses KMS Envelope Encryption, `kms:CreateGrant` permissions are required. The condition `kms:GrantIsForAWSResource` is not supported for the `CreateCluster` action, and this condition should not be given in KMS policies to control `kms:CreateGrant` permissions for users performing `CreateCluster` operations.

## Remediation for rule failure

Provide an `EncryptionConfig` configuration with a list of `Resources` that contains secrets and a `Provider` configuration containing a `KeyArn`.

The examples that follow show how to implement this remediation.

### Amazon EKS cluster - Example

Amazon EKS cluster configured to have Kubernetes secrets encrypted using Amazon Elastic Kubernetes Service (KMS) keys. The example is shown in JSON and in YAML.

#### JSON example

```json
{
}
```
YAML example

EKSCluster:
  Type: AWS::EKS::Cluster
  Properties:
    RoleArn: !GetAtt 'EKSClusterRole.Arn'
    ResourcesVpcConfig:
      SubnetIds:
        - !Ref 'SubnetOne'
        - !Ref 'SubnetTwo'
    EndpointPublicAccess: false
    EndpointPrivateAccess: true
  Logging:
    ClusterLogging:
      EnabledTypes:
        - Type: api
        - Type: audit
        - Type: authenticator
        - Type: controllerManager
        - Type: scheduler
  EncryptionConfig:
    Resources:
      - secrets
  Provider:
KeyArn: !GetAtt 'KMSKey.Arn'

CT.EKS.PR.2 rule specification

```yaml
# ###################################
##       Rule Specification        ##
#####################################

# Rule Identifier:
#   eks_secrets_encrypted_check

# Description:
#   This control checks whether Amazon Elastic Kubernetes Service (Amazon EKS) clusters are configured to use Kubernetes secrets encrypted with AWS Key Management Service (KMS) keys.

# Reports on:
#   AWS::EKS::Cluster

# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
#   None

# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Amazon EKS cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Amazon EKS cluster resource
#     And: 'EncryptionConfig' has not been provided or provided as an empty list
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
```
And: The input document contains an Amazon EKS cluster resource
And: 'EncryptionConfig' has been provided as a non-empty list
And: There are no entries in 'EncryptionConfig' where 'Resources' has been
provideda non-empty list with at least one value equal to 'secrets'
And: For the same entry in 'EncryptionConfig', where 'KeyArn' in 'Provider' has
been provided as a non-empty string or valid local reference to a KMS key or
key alias
Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an Amazon EKS cluster resource
And: 'EncryptionConfig' has been provided as a non-empty list
And: For at least one entry in 'EncryptionConfig', 'Resources' has been
provided as a non-empty list with at least one value equal to 'secrets'
And: For the same entry in 'EncryptionConfig', 'KeyArn' in 'Provider' has been
provided as a non-empty string or valid local reference to a KMS key or key alias
Then: PASS

# Constants

let EKS_CLUSTER_TYPE = "AWS::EKS::Cluster"
let INPUT_DOCUMENT = this

# Assignments

let eks_clusters = Resources.[ Type == %EKS_CLUSTER_TYPE ]

# Primary Rules

rule eks_secrets_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
%eks_clusters not empty {
check(%eks_clusters.Properties)
<<
[CT.EKS.PR.2]: Require an Amazon EKS cluster to be configured with secret encryption using AWS Key Management Service (KMS) keys
[FIX]: Provide an 'EncryptionConfig' configuration with a list of 'Resources' that contains 'secrets' and a 'Provider' configuration containing a 'KeyArn'.

```python
rule eks_secrets_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %EKS_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%EKS_CLUSTERS.resourceProperties)
}#
# Parameterized Rules
#
rule check(eks_cluster) {
    %eks_cluster {
        # Scenario 2
        EncryptionConfig exists
        EncryptionConfig is_list
        EncryptionConfig not empty

        # Scenario 3 and 4
        some EncryptionConfig[*] {
            Resources exists
            Resources is_list
            Resources not empty
            some Resources[*] == "secrets"

            Provider exists
            Provider is_struct
            Provider {
                KeyArn exists
                check_is_string_and_not_empty(KeyArn) or
                check_local_references(%INPUT_DOCUMENT, KeyArn, "AWS::KMS::Key") or
                check_local_references(%INPUT_DOCUMENT, KeyArn, "AWS::KMS::Alias")
            }
        }
    }
}
# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_resource_type)
            <<Local Stack reference was invalid>>
        }
    }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    %referenced_resource not empty
    %referenced_resource {
        Type == %referenced_resource_type
    }
}
CT.EKS.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
EKSClusterRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service: eks.amazonaws.com
Action: sts:AssumeRole
Path: /
ManagedPolicyArns:
  - arn:aws:iam::aws:policy/AmazonEKSClusterPolicy
KMSKey:
  Type: AWS::KMS::Key
  Properties:
    PendingWindowInDays: 7
  KeyPolicy:
    Version: 2012-10-17
    Id: example-key-policy
    Statement:
      - Sid: Enable IAM User Permissions
        Effect: Allow
        Principal:
          AWS:
            Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
        Action: kms:*
        Resource: '*'
        KeySpec: SYMMETRIC_DEFAULT
EKSCluster:
  Type: AWS::EKS::Cluster
  Properties:
    RoleArn:
      Fn::GetAtt:
      - EKSClusterRole
      - Arn
    ResourcesVpcConfig:
      SubnetIds:
        - Ref: SubnetOne
        - Ref: SubnetTwo
      EndpointPublicAccess: false
      EndpointPrivateAccess: true
Logging:
  ClusterLogging:
    EnabledTypes:
      - Type: api
      - Type: audit
      - Type: authenticator
      - Type: controllerManager
      - Type: scheduler
  EncryptionConfig:
    - Resources:
      - secrets
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
EKSClusterRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
Elastic Load Balancing controls

Topics

• [CT.ELASTICLOADBALANCING.PR.1] Require any application load balancer listener default actions to redirect all HTTP requests to HTTPS

• [CT.ELASTICLOADBALANCING.PR.2] Require any Amazon ELB application or network load balancer to have an AWS Certificate Manager certificate

• [CT.ELASTICLOADBALANCING.PR.3] Require any application load balancer to have defensive or strictest desync mitigation mode activated
• [CT.ELASTICLOADBALANCING.PR.4] Require that any application load balancer must be configured to drop HTTP headers

• [CT.ELASTICLOADBALANCING.PR.5] Require that application load balancer deletion protection is activated

• [CT.ELASTICLOADBALANCING.PR.6] Require that application and network load balancer access logging is activated

• [CT.ELASTICLOADBALANCING.PR.7] Require any classic load balancer to have multiple Availability Zones configured

• [CT.ELASTICLOADBALANCING.PR.8] Require any classic load balancer SSL/HTTPS listener to have a certificate provided by AWS Certificate Manager

• [CT.ELASTICLOADBALANCING.PR.9] Require that an AWS ELB Application or Classic Load Balancer listener is configured with HTTPS or TLS termination

• [CT.ELASTICLOADBALANCING.PR.10] Require an ELB application or classic load balancer to have logging activated

• [CT.ELASTICLOADBALANCING.PR.11] Require any ELB classic load balancer to have connection draining activated

• [CT.ELASTICLOADBALANCING.PR.12] Require any ELB classic load balancer SSL/HTTPS listener to have a predefined security policy with a strong configuration

• [CT.ELASTICLOADBALANCING.PR.13] Require any ELB classic load balancer to have cross-zone load balancing activated

• [CT.ELASTICLOADBALANCING.PR.14] Require a Network Load Balancer to have cross-zone load balancing activated

• [CT.ELASTICLOADBALANCING.PR.15] Require that an Elastic Load Balancing v2 target group does not explicitly disable cross-zone load balancing

[CT.ELASTICLOADBALANCING.PR.1] Require any application load balancer listener default actions to redirect all HTTP requests to HTTPS

This control checks whether HTTP to HTTPS redirection is configured as a default action on HTTP listeners of Application Load Balancers.

• Control objective: Encrypt data in transit

• Implementation: AWS CloudFormation Guard Rule

• Control behavior: Proactive
Resource types: AWS::ElasticLoadBalancingV2::Listener

AWS CloudFormation guard rule: CT.ELASTICLOADBALANCING.PR.1 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.ELASTICLOADBALANCING.PR.1 rule specification
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.ELASTICLOADBALANCING.PR.1 example templates

Explanation

Before you start to use your Application Load Balancer, you must add one or more listeners. A listener is a process that uses the configured protocol and port to check for connection requests. Listeners support HTTP and HTTPS protocols. You can use an HTTPS listener to offload the work of encryption and decryption to your Application Load Balancer. You should utilize redirect actions with Application Load Balancer to redirect any client HTTP request to an HTTPS request on port 443, to enforce encryption in transit.

Usage considerations

- This control evaluates only the default actions on Application Load Balancer listeners.

Remediation for rule failure

Configure a default HTTPS redirect action on Application Load Balancer HTTP listeners.

The examples that follow show how to implement this remediation.

Application Load Balancer Listener - Example

Application load balancer listener configured with a default action that redirects HTTP requests on port 80 to HTTPS requests on port 443, retaining the original host name, path, and query string. The example is shown in JSON and in YAML.

JSON example
YAML example

Listener:
  Type: AWS::ElasticLoadBalancingV2::Listener
  Properties:
    LoadBalancerArn: !Ref 'ApplicationLoadBalancer'
    Port: 80
    Protocol: HTTP
  DefaultActions:
    - Type: redirect
      RedirectConfig:
        Protocol: HTTPS
        Port: 443
        Host: '#{host}'
CT.ELASTICLOADBALANCING.PR.1 rule specification

# ##########################################################################
##       Rule Specification       ##
##########################################################################
# 
# Rule Identifier:
#   alb_http_to_https_redirection_check
# 
# Description:
#   This control checks whether HTTP to HTTPS redirection is configured as a default
#   action on HTTP listeners of Application Load Balancers.
# 
# Reports on:
#   AWS::ElasticLoadBalancingV2::Listener
# 
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
# 
# Rule Parameters:
#   None
# 
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
#     And: The input document does not contain any ElasticLoadBalancingV2 listener
#     resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
#     And: The input document contains an ElasticLoadBalancingV2 listener
#     And: 'Protocol' is set to a value other than 'HTTP'
#     Then: SKIP
#   Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElasticLoadBalancingV2 listener
# And: 'Protocol' is set to 'HTTP'
# And: 'DefaultActions' is missing or is provided and an empty list
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElasticLoadBalancingV2 listener
# And: 'Protocol' is set to 'HTTP'
# And: 'DefaultActions' contains an action with 'Type' set to a value other than 'redirect'
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElasticLoadBalancingV2 listener
# And: 'Protocol' is set to 'HTTP'
# And: 'DefaultActions' contains an action with 'Type' set to a value of 'redirect'
# And: 'RedirectConfig.Protocol' is missing or set to a value other than 'HTTPS'
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElasticLoadBalancingV2 listener
# And: 'Protocol' is set to 'HTTP'
# And: All 'DefaultActions' have an action with 'Type' set to a value of 'redirect' and
# 'Protocol.RedirectConfig' set to the value 'HTTPS'
# Then: PASS

# Constants
#
let ELASTIC_LOAD_BALANCER_V2_LISTENER_TYPE = "AWS::ElasticLoadBalancingV2::Listener"
let INPUT_DOCUMENT = this

# Assignments
#
let elb_v2_listeners = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_V2_LISTENER_TYPE ]
Primary Rules

rule alb_http_to_https_redirection_check when is_cfn_template(%INPUT_DOCUMENT)
  %elb_v2_listeners not empty {
    check(%elb_v2_listeners.Properties)
    <<
    [CT.ELASTICLOADBALANCING.PR.1]: Require any application load balancer listener default actions to redirect all HTTP requests to HTTPS
    [FIX]: Configure a default HTTPS redirect action on application load balancer HTTP listeners.
    >>
  }

rule alb_http_to_https_redirection_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_V2_LISTENER_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_V2_LISTENER_TYPE.resourceProperties)
  <<
  [CT.ELASTICLOADBALANCING.PR.1]: Require any application load balancer listener default actions to redirect all HTTP requests to HTTPS
  [FIX]: Configure a default HTTPS redirect action on application load balancer HTTP listeners.
  >>
}

Parameterized Rules

rule check(elbv2_listener) {
  %elbv2_listener [
    # Scenario 2
    Protocol in [ "HTTP" ]
  ] {
    # Scenarios 3
    DefaultActions exists
    DefaultActions is_list
    DefaultActions not empty

    # Scenario 4 and 5
    DefaultActions[*] {
      Type == "redirect"
      RedirectConfig exists
      RedirectConfig is_struct
  }
RedirectConfig {
    Protocol exists
    Protocol == "HTTPS"
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or Resources exists
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ELASTICLOADBALANCING.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
    Type: AWS::EC2::VPC
    Properties:
        CidrBlock: 10.0.0.0/16
        EnableDnsSupport: 'true'
        EnableDnsHostnames: 'true'
SubnetOne:
    Type: AWS::EC2::Subnet
    Properties:
    VpcId:
        Ref: VPC
CidrBlock: 10.0.0.0/24
AvailabilityZone:
  Fn::Select:
  - 0
  - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
      - 1
      - Fn::GetAZs: ''
ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
    - Ref: SubnetOne
    - Ref: SubnetTwo
    IpAddressType: ipv4
Listener:
  Type: AWS::ElasticLoadBalancingV2::Listener
  Properties:
    LoadBalancerArn:
      Ref: ApplicationLoadBalancer
    Port: 80
    Protocol: HTTP
    DefaultActions:
    - Type: redirect
      RedirectConfig:
        Protocol: HTTPS
        Port: 443
        Host: "#{host}"
        Path: "/#{path}"
        Query: "#{query}"
        StatusCode: "HTTP_301"
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
  AvailabilityZone:
    Fn::Select:
      - 0
      - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
  AvailabilityZone:
    Fn::Select:
      - 1
      - Fn::GetAZs: ''
ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
      - Ref: SubnetOne
      - Ref: SubnetTwo
    IpAddressType: ipv4
Listener:
  Type: AWS::ElasticLoadBalancingV2::Listener
  Properties:
    LoadBalancerArn:
[CT.ELASTICLOADBALANCING.PR.2] Require any Amazon ELB application or network load balancer to have an AWS Certificate Manager certificate

This control checks whether your Elastic Load Balancing (ELB) application and network load balancers use certificates provided by AWS Certificate Manager (ACM).

- **Control objective:** Encrypt data in transit

- **Implementation:** AWS CloudFormation Guard Rule

- **Control behavior:** Proactive

- **Resource types:** AWS::ElasticLoadBalancingV2::Listener, AWS::ElasticLoadBalancingV2::ListenerCertificate

- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.2 rule specification](#)

- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.2 example templates](#)

**Explanation**
To create a certificate, use AWS Certificate Manager (ACM) or another tool that supports the SSL and TLS protocols, such as OpenSSL. AWS Control Tower recommends that you use AWS Certificate Manager to create or import certificates for your load balancer.

AWS Certificate Manager integrates with Amazon ELB application load balancers and network load balancers, so that you can deploy the certificate on your load balancer. We also recommend that you automatically renew these certificates.

**Usage considerations**

- This control applies only to HTTPS and TLS Amazon ELB listeners and ELB listener certificate resources that have one or more certificates configured.

**Remediation for rule failure**

Configure the Certificates property to use certificates provided by AWS Certificate Manager.

The examples that follow show how to implement this remediation.

**Amazon ELB Listener - Example**

Amazon ELB HTTPS listener configured with an AWS Certificate Manager SSL certificate. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "ELBListener": {
      "Type": "AWS::ElasticLoadBalancingV2::Listener",
      "Properties": {
         "DefaultActions": [
            {
               "Type": "forward",
               "TargetGroupArn": {
                  "Ref": "TargetGroup"
               }
            }
         ],
         "LoadBalancerArn": {
            "Ref": "ApplicationLoadBalancer"
         }
      }
   }
}
```
The examples that follow show how to implement this remediation.

**Amazon ELB Listener Certificate - Example**

Amazon ELB listener certificate configured with an AWS Certificate Manager SSL certificate. The example is shown in JSON and in YAML.

**JSON example**

```json
{
}
```

**YAML example**

```yaml
ELBListener:
  Type: AWS::ElasticLoadBalancingV2::Listener
Properties:
  DefaultActions:
    - Type: forward
      TargetGroupArn: !Ref 'TargetGroup'
      LoadBalancerArn: !Ref 'ApplicationLoadBalancer'
  Protocol: HTTPS
  Certificates:
    - CertificateArn: !Ref 'ACMCertificate'
  Port: 443
```
"ELBListenerCertificate": {
  "Type": "AWS::ElasticLoadBalancingV2::ListenerCertificate",
  "Properties": {
    "ListenerArn": {
      "Ref": "Listener"
    },
    "Certificates": [
      {
        "CertificateArn": {
          "Ref": "ACMCertificate"
        }
      }
    ]
  }
}
Reports on:
AWS::ElasticLoadBalancingV2::Listener,
AWS::ElasticLoadBalancingV2::ListenerCertificate

Evaluates:
AWS CloudFormation, AWS CloudFormation hook

Rule Parameters:
None

Scenarios:
Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any ElasticLoadBalancingV2 listener or listener certificate resources
Then: SKIP
Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticLoadBalancingV2 listener resource
And: 'Protocol' is set to a value other than 'HTTPS' or 'TLS'
Then: SKIP
Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticLoadBalancingV2 listener certificate resource
And: 'Certificates' has not been provided or has been provided as an empty list
Then: SKIP
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticLoadBalancingV2 listener resource
And: 'Protocol' is set to 'HTTPS' or 'TLS'
And: 'Certificates' has not been provided or has been provided as an empty list
Then: FAIL
Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ElasticLoadBalancingV2 listener resource
And: 'Protocol' is set to 'HTTPS' or 'TLS'
And: One or more items in 'Certificates' do not match an ACM certificate ARN
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElasticLoadBalancingV2 listener certificate resource
# And: One or more items in 'Certificates' do not match an ACM certificate ARN
# Then: FAIL
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElasticLoadBalancingV2 listener resource
# And: 'Protocol' is set to 'HTTPS' or 'TLS'
# And: All items in 'Certificates' match an ACM certificate ARN
# Then: PASS
# Scenario: 8
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElasticLoadBalancingV2 listener certificate resource
# And: All items in 'Certificates' match an ACM certificate ARN
# Then: PASS

# Constants

let ELASTIC_LOAD_BALANCER_V2_LISTENER_TYPE = "AWS::ElasticLoadBalancingV2::Listener"
let ELASTIC_LOAD_BALANCER_V2_CERTIFICATE_TYPE = "AWS::ElasticLoadBalancingV2::ListenerCertificate"
let ACM_CERTIFICATE_ARN_PATTERN = /arn:aws[a-z0-9\-]+:acm[a-z0-9\-]+:\d{12}:certificate/[\w\-]{1,64}/

let INPUT_DOCUMENT = this

# Assignments

let elb_v2_listeners = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_V2_LISTENER_TYPE ]
let elb_v2_certificates = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_V2_CERTIFICATE_TYPE ]

# Primary Rules
# rule elbv2_acm_certificate_required_check when is_cfn_template(%INPUT_DOCUMENT)
%elb_v2_listeners not empty {
  check_listener(%elb_v2_listeners.Properties)
  <<
    [CT.ELASTICLOADBALANCING.PR.2]: Require any Amazon ELB application or network load balancer to have an AWS Certificate Manager certificate
    [FIX]: Configure the 'Certificates' property to use certificates provided by AWS Certificate Manager.
  >>
}

rule elbv2_acm_certificate_required_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_V2_LISTENER_TYPE) {
  check_listener(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_V2_LISTENER_TYPE.resourceProperties)
  <<
    [CT.ELASTICLOADBALANCING.PR.2]: Require any Amazon ELB application or network load balancer to have an AWS Certificate Manager certificate
    [FIX]: Configure the 'Certificates' property to use certificates provided by AWS Certificate Manager.
  >>
}

rule elbv2_acm_certificate_required_check when is_cfn_template(%INPUT_DOCUMENT) %elb_v2_certificates not empty {
  check_elbv2_listener_certificate(%elb_v2_certificates.Properties)
  <<
    [CT.ELASTICLOADBALANCING.PR.2]: Require any Amazon ELB application or network load balancer to have an AWS Certificate Manager certificate
    [FIX]: Configure the 'Certificates' property to use certificates provided by AWS Certificate Manager.
  >>
}

rule elbv2_acm_certificate_required_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_V2_CERTIFICATE_TYPE) {
  check_elbv2_listener_certificate(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_V2_CERTIFICATE_TYPE.resourceProperties)
  <<
    [CT.ELASTICLOADBALANCING.PR.2]: Require any Amazon ELB application or network load balancer to have an AWS Certificate Manager certificate
    [FIX]: Configure the 'Certificates' property to use certificates provided by AWS Certificate Manager.
  >>
}
# Parameterized Rules

rule check_listener(elbv2_listener) {
    %elbv2_listener[
        # Scenario 2
        Protocol in ["HTTPS", "TLS"]
    ] {
        # Scenarios 3 and 5
        Certificates exists
        Certificates is_list
        Certificates not empty
        Certificates[*] {
            CertificateArn exists
            check_is_acm_certificate(CertificateArn)
        }
    }
}

rule check_elbv2_listener_certificate(listener_certificate) {
    %listener_certificate[
        Certificates exists
        Certificates is_list
        Certificates not empty
    ] {
        # Scenarios 4 and 6
        Certificates[*] {
            CertificateArn exists
            check_is_acm_certificate(CertificateArn)
        }
    }
}

rule check_is_acm_certificate(certificate) {
    %certificate {
        this == %ACM_CERTIFICATE_ARN_PATTERN or
        check_local_references(%INPUT_DOCUMENT, this, "AWS::CertificateManager::Certificate")
    }
}

# Utility Rules
CT.ELASTICLOADBALANCING.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsSupport: 'true'
  EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
      - 0
      - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
      - 1
      - Fn::GetAZs: ''

ACMCertificate:
  Type: "AWS::CertificateManager::Certificate"
  Properties:
    DomainName: example.com
    ValidationMethod: DNS
    DomainValidationOptions:
      - DomainName: www.example.com
        HostedZoneId: ZZZHHHHWwWAAA

TargetGroup:
  Type: AWS::ElasticLoadBalancingV2::TargetGroup
  Properties:
    Protocol: HTTP
    Port: 80
    VpcId:
      Ref: VPC

ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.1.0/24
  AvailabilityZone:
    Fn::Select:
      - 1
      - Fn::GetAZs: ''
TargetGroup:
  Type: AWS::ElasticLoadBalancingV2::TargetGroup
Properties:
  Protocol: HTTP
  Port: 80
  VpcId:
    Ref: VPC
ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
Properties:
  Scheme: internal
  Subnets:
    - Ref: SubnetOne
    - Ref: SubnetTwo
  IpAddressType: ipv4
Listener:
  Type: AWS::ElasticLoadBalancingV2::Listener
Properties:
  DefaultActions:
    - Type: forward
      TargetGroupArn:
        Ref: TargetGroup
      LoadBalancerArn:
        Ref: ApplicationLoadBalancer
  Protocol: HTTPS
  Certificates:
    Port: 443
[CT.ELASTICLOADBALANCING.PR.3] Require any application load balancer to have defensive or strictest desync mitigation mode activated

This control checks to ensure that an Application Load Balancer is configured with defensive or strictest desync mitigation mode.

- **Control objective:** Protect data integrity
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancingV2::LoadBalancer
- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.3 example templates](#)

**Explanation**

HTTP desynchronization (desync) issues can lead to request smuggling and make applications vulnerable to request queue or cache poisoning. In turn, these vulnerabilities can lead to credential stuffing or execution of unauthorized commands. When configured with defensive or strictest desync mitigation mode, Application Load Balancers can protect your application from security issues that may be caused by HTTP desync.

**Remediation for rule failure**

Omit the load balancer attribute `routing.http.desync_mitigation_mode` or set the attribute to one of defensive or strictest.

The examples that follow show how to implement this remediation.

**Application Load Balancer - Example**

Application Load Balancer configured with defensive desync mitigation mode, by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.
The examples that follow show how to implement this remediation.
Application Load Balancer - Example

Application Load Balancer configured with strictest desync mitigation mode, by meand of the `routing.http.desync_mitigation_mode` load balancer attribute. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ApplicationLoadBalancer": {
        "Type": "AWS::ElasticLoadBalancingV2::LoadBalancer",
        "Properties": {
            "Scheme": "internal",
            "Subnets": [
                { "Ref": "SubnetOne" },
                { "Ref": "SubnetTwo" }
            ],
            "IpAddressType": "ipv4",
            "Type": "application",
            "LoadBalancerAttributes": [
                {
                    "Key": "routing.http.desync_mitigation_mode",
                    "Value": "strictest"
                }
            ]
        }
    }
}
```

**YAML example**

```yaml
ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
```

Proactive controls
CT.ELASTICLOADBALANCING.PR.3 rule specification

# ###################################################################
##       Rule Specification        ##
####################################################################
#
# Rule Identifier:
#   alb_desync_mode_check
#
# Description:
#   This control checks to ensure that an Application Load Balancer is configured with
#   'defensive' or 'strictest' desync mitigation mode.
#
# Reports on:
#   AWS::ElasticLoadBalancingV2::LoadBalancer
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any ELBv2 load balancer resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ELBv2 load balancer resource
# And: 'Type' is set to a value other than 'application'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ELBv2 load balancer resource
# And: 'Type' is set to 'application' for the ELBv2 load balancer resource
# And: 'LoadBalancerAttributes' have been specified on the ELBv2 load balancer resource
# And: The 'LoadBalancerAttribute' 'routing.http.desync_mitigation_mode' has been provided
# and is not one of 'defensive' or 'strictest'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ELBv2 load balancer resource
# And: 'Type' is set to 'application' for the ELBv2 load balancer resource
# And: 'LoadBalancerAttributes' have not been specified on the ELBv2 load balancer resource or specified
# as an empty list
# Then: PASS
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ELBv2 load balancer resource
# And: 'Type' is set to 'application' for the ELBv2 load balancer resource
# And: 'LoadBalancerAttributes' have been specified on the ELBv2 load balancer resource
# And: 'routing.http.desync_mitigation_mode' has not been provided as a 'LoadBalancerAttribute'
# Then: PASS
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ELBv2 load balancer resource
# And: 'Type' is set to 'application' for the ELBv2 load balancer resource
# And: 'LoadBalancerAttributes' have been specified on the ELBv2 load balancer resource
# And: The 'LoadBalancerAttribute' 'routing.http.desync_mitigation_mode' has been provided
# and is one of 'defensive' or 'strictest'
# Then: PASS
# Constants
#
let ELASTIC_LOAD_BALANCER_V2_TYPE = "AWS::ElasticLoadBalancingV2::LoadBalancer"
let ALLOWED_DESYNC_MODES = [ "defensive", "strictest" ]
let INPUT_DOCUMENT = this
#
# Assignments
#
let elastic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_V2_TYPE ]
#
# Primary Rules
#
rule alb_desync_mode_check when is_cfn_template(%INPUT_DOCUMENT)
  %elastic_load_balancers not empty {
      check(%elastic_load_balancers.Properties)
      <<
        [CT.ELASTICLOADBALANCING.PR.3]: Require any application load balancer to have
defensive or strictest desync mitigation mode activated
        [FIX]: Omit the load balancer attribute 'routing.http.desync_mitigation_mode'
or set the attribute to one of 'defensive' or 'strictest'.
      >>
  }
rule alb_desync_mode_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_V2_TYPE) {
      check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_V2_TYPE.resourceProperties)
      <<
        [CT.ELASTICLOADBALANCING.PR.3]: Require any application load balancer to have
defensive or strictest desync mitigation mode activated
        [FIX]: Omit the load balancer attribute 'routing.http.desync_mitigation_mode'
or set the attribute to one of 'defensive' or 'strictest'.
      >>
  }
#
# Parameterized Rules
#
rule check(elastic_load_balancer) {

%elastic_load_balancer[
    # Scenario 2
    Type == "application"
] {

    # Scenario 4
    LoadBalancerAttributes not exists or
    check_application_load_balancer_attributes(this)
}
}

rule check_application_load_balancer_attributes(application_load_balancer) {
    %application_load_balancer {
        LoadBalancerAttributes is_list
        LoadBalancerAttributes[
            # Scenario 5
            Key exists
            Key == "routing.http.desync_mitigation_mode"
        ] {
            # Scenarios 3 and 6
            Value exists
            Value in %ALLOWED_DESYNC_MODES
        }
    }
}

# Utility Rules

# rule is_cfn_template(doc) {
#    %doc {
#        AWSTemplateFormatVersion exists or
#        Resources exists
#    }
#}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.ELASTICLOADBALANCING.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  SubnetOne:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
      AvailabilityZone:
        Fn::Select:
          - 0
          - Fn::GetAZs: ''
  SubnetTwo:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.1.0/24
      AvailabilityZone:
        Fn::Select:
          - 1
          - Fn::GetAZs: ''
  ApplicationLoadBalancer:
    Type: AWS::ElasticLoadBalancingV2::LoadBalancer
    Properties:
      Scheme: internal
      Subnets:
        - Ref: SubnetOne
        - Ref: SubnetTwo
      IpAddressType: ipv4
      Type: application
LoadBalancerAttributes:
  - Key: routing.http.desync_mitigation_mode
    Value: strictest

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
  SubnetOne:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/24
      AvailabilityZone:
        Fn::Select:
          - 0
          - Fn::GetAZs: ''
  SubnetTwo:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.1.0/24
      AvailabilityZone:
        Fn::Select:
          - 1
          - Fn::GetAZs: ''
  ApplicationLoadBalancer:
    Type: AWS::ElasticLoadBalancingV2::LoadBalancer
    Properties:
      Scheme: internal
      Subnets:
        - Ref: SubnetOne
[CT.ELASTICLOADBALANCING.PR.4] Require that any application load balancer must be configured to drop HTTP headers

This control checks whether Application Load Balancers are configured to drop non-valid HTTP headers.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancingV2::LoadBalancer
- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.4 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.4 example templates](#)

**Explanation**

By default, Application Load Balancers are not configured to drop non-valid HTTP header values. Removing these header values prevents HTTP desync attacks.

**Remediation for rule failure**

Set the load balancer attribute `routing.http.drop_invalid_header_fields.enabled` to `true`.

The examples that follow show how to implement this remediation.
Application Load Balancer - Example

Application Load Balancer configured to drop non-valid HTTP headers. The example is shown in JSON and in YAML.

JSON example

```
{
  "ApplicationLoadBalancer": {
    "Type": "AWS::ElasticLoadBalancingV2::LoadBalancer",
    "Properties": {
      "Scheme": "internal",
      "Type": "application",
      "Subnets": [
        {
          "Ref": "SubnetOne"
        },
        {
          "Ref": "SubnetTwo"
        }
      ],
      "IpAddressType": "ipv4",
      "LoadBalancerAttributes": [
        {
          "Key": "routing.http.drop_invalid_header_fields.enabled",
          "Value": "true"
        }
      ]
    }
  }
}
```

YAML example

```
ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Type: application
    Subnets:
```

Proactive controls
- !Ref 'SubnetOne'
- !Ref 'SubnetTwo'
IpAddressType: ipv4
LoadBalancerAttributes:
  - Key: routing.http.drop_invalid_header_fields.enabled
    Value: 'true'

CT.ELASTICLOADBALANCING.PR.4 rule specification

# ###################################################################
##       Rule Specification        ##
###################################################################
#
# Rule Identifier:
#   alb_http_drop_invalid_header_enabled_check
#
# Description:
#   This control checks whether Application Load Balancers are configured to drop non-
#   valid HTTP headers.
#
# Reports on:
#   AWS::ElasticLoadBalancingV2::LoadBalancer
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
#       And: The input document does not contain any ELBv2 load balancer resources
#       Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
#       And: The input document contains an ELBv2 load balancer resource
#       And: 'Type' is set to a value other than 'application'
Then: SKIP
Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   And: The input document contains an ELBv2 load balancer resource
   And: 'Type' is set to 'application' for the ELBv2 load balancer resource
   And: 'LoadBalancerAttributes' have not been specified on the ELBv2 load balancer resource
   Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   And: The input document contains an ELBv2 load balancer resource
   And: 'Type' is set to 'application' for the ELBv2 load balancer resource
   And: 'LoadBalancerAttributes' have been specified on the ELBv2 load balancer resource
   And: 'routing.http.drop_invalid_header_fields.enabled' has not been provided as a 'LoadBalancerAttribute'
   Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   And: The input document contains an ELBv2 load balancer resource
   And: 'Type' is set to 'application' for the ELBv2 load balancer resource
   And: 'LoadBalancerAttributes' have been specified on the ELBv2 load balancer resource
   And: The 'LoadBalancerAttribute' 'routing.http.drop_invalid_header_fields.enabled' has been provided
      and is set to bool(false) or string(false)
   Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   And: The input document contains an ELBv2 load balancer resource
   And: 'Type' is set to 'application' for the ELBv2 load balancer resource
   And: 'LoadBalancerAttributes' have been specified on the ELBv2 load balancer resource
   And: The 'LoadBalancerAttribute' 'routing.http.drop_invalid_header_fields.enabled' has been provided and
      is set to bool(true) or string(true)
   Then: PASS

Constants

Proactive controls
let ELASTIC_LOAD_BALANCER_V2_TYPE = "AWS::ElasticLoadBalancingV2::LoadBalancer"
let INPUT_DOCUMENT = this

let elastic_load_balancers = Resources.[ Type == %ELASTIC_LOAD_BALANCER_V2_TYPE ]

rule alb_http_drop_invalid_header_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
  %elastic_load_balancers not empty {
    check(%elastic_load_balancers.Properties)
    <<
      [CT.ELASTICLOADBALANCING.PR.4]: Require that any application load balancer must
      be configured to drop HTTP headers
      [FIX]: Set the load balancer attribute
      'routing.http.drop_invalid_header_fields.enabled' to 'true'.
    >>
  }

rule alb_http_drop_invalid_header_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_V2_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_V2_TYPE.resourceProperties)
  <<
    [CT.ELASTICLOADBALANCING.PR.4]: Require that any application load balancer must
    be configured to drop HTTP headers
    [FIX]: Set the load balancer attribute
    'routing.http.drop_invalid_header_fields.enabled' to 'true'.
  >>
}

rule check(elastic_load_balancer) {
  %elastic_load_balancer[ Type == "application" ] {
    # Scenario 2
    LoadBalancerAttributes exists
  }
  # Scenario 2
  LoadBalancerAttributes exists
}
LoadBalancerAttributes is_list
LoadBalancerAttributes not empty

# Scenario 3, 4 and 5
some LoadBalancerAttributes[*] {
    Key exists
    Value exists

    Key == "routing.http.drop_invalid_header_fields.enabled"
    Value in [ true, "true" ]
}
}
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ELASTICLOADBALANCING.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
    Type: AWS::EC2::VPC
    Properties:
        CidrBlock: 10.0.0.0/16
EnableDnsSupport: 'true'
EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''

ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Type: application
    Subnets:
      - Ref: SubnetOne
      - Ref: SubnetTwo
    IpAddressType: ipv4
    LoadBalancerAttributes:
      - Key: routing.http.drop_invalid_header_fields.enabled
        Value: "true"

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  VPC:
Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsSupport: 'true'
  EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''

ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Type: application
    Subnets:
      - Ref: SubnetOne
      - Ref: SubnetTwo
    IpAddressType: ipv4
    LoadBalancerAttributes:
      - Key: routing.http.drop_invalid_header_fields.enabled
        Value: "false"
[CT.ELASTICLOADBALANCING.PR.5] Require that application load balancer deletion protection is activated

Checks whether Elastic Load Balancing (ELB) has deletion protection activated.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancingV2::LoadBalancer
- **AWS CloudFormation guard rule:** CT.ELASTICLOADBALANCING.PR.5 rule specification

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.ELASTICLOADBALANCING.PR.5 rule specification
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.ELASTICLOADBALANCING.PR.5 example templates

**Explanation**

Activate deletion protection to protect your Application Load Balancer from deletion.

**Remediation for rule failure**

Set the load balancer attribute deletion_protection.enabled to true.

The examples that follow show how to implement this remediation.

**Application Load Balancer - Example**

Application Load Balancer configured with deletion protection active. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "Elb": {
        "Type": "AWS::ElasticLoadBalancingV2::LoadBalancer",
        "Properties": {
```
"Scheme": "internal",
"Type": "application",
"Subnets": [
    {
        "Ref": "SubnetOne"
    },
    {
        "Ref": "SubnetTwo"
    }
],
"IpAddressType": "ipv4",
"LoadBalancerAttributes": [
    {
        "Key": "deletion_protection.enabled",
        "Value": "true"
    }
]}
}

YAML example

Elb:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Type: application
    Subnets:
      - !Ref 'SubnetOne'
      - !Ref 'SubnetTwo'
    IpAddressType: ipv4
    LoadBalancerAttributes:
      - Key: deletion_protection.enabled
        Value: 'true'

CT.ELASTICLOADBALANCING.PR.5 rule specification
# Rule Specification

## Rule Identifier:

elbv2_deletion_protection_enabled_check

## Description:

Checks whether Elastic Load Balancing (ELB) has deletion protection activated.

## Reports on:

AWS::ElasticLoadBalancingV2::LoadBalancer

## Evaluates:

AWS CloudFormation, AWS CloudFormation hook

## Rule Parameters:

None

## Scenarios:

1. **Scenario: 1**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   - And: The input document does not contain any ELBv2 LoadBalancer resource
   - Then: SKIP

2. **Scenario: 2**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   - And: The input document contains an ELBv2 LoadBalancer resource
   - And: 'LoadBalancerAttributes' have not been specified or is an empty list on the ELBv2 resource
   - Then: FAIL

3. **Scenario: 3**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   - And: The input document contains an ELBv2 LoadBalancer resource
   - And: 'LoadBalancerAttributes' have been specified on the ELBv2 LoadBalancer resource
   - And: 'deletion_protection.enabled' has not been provided as a 'LoadBalancerAttribute'
   - Then: FAIL

4. **Scenario: 4**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ELBv2 LoadBalancer resource
And: 'LoadBalancerAttributes' have been specified on the ELBv2 LoadBalancer resource
And: The 'LoadBalancerAttribute' 'deletion Protection.enabled' has been provided and is set to bool(false) or string(false)
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ELBv2 LoadBalancer Resource
And: 'LoadBalancerAttributes' have been specified on the ELBv2 LoadBalancer resource
And: The 'LoadBalancerAttribute' 'deletion Protection.enabled' has been provided and is set to bool(true) or string(true)
Then: PASS

Constants

let ELASTIC_LOAD_BALANCER_V2_TYPE = "AWS::ElasticLoadBalancingV2::LoadBalancer"
let INPUT_DOCUMENT = this

Assignments

let elastic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_V2_TYPE ]

Primary Rules

rule elbv2_deletion_protection_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%elastic_load_balancers not empty {
    check(%elastic_load_balancers.Properties)
    %elastic_load_balancers not empty {
        <<
        [CT.ELASTICLOADBALANCING.PR.5]: Require that application load balancer deletion protection is activated
        [FIX]: Set the load balancer attribute 'deletion Protection.enabled' to 'true'.
        >>
    }
}

rule elbv2_deletion_protection_enabled_check when is_cfn_hook(%INPUTDOCUMENT,
%ELASTIC_LOAD_BALANCER_V2_TYPE) {
Proactive controls

```python
check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_V2_TYPE.resourceProperties)
    =>
        [CT.ELASTICLOADBALANCING.PR.5]: Require that application load balancer deletion protection is activated
        [FIX]: Set the load balancer attribute 'deletion_protection.enabled' to 'true'.
    >>
}

# Parameterized Rules
#
rule check(elastic_load_balancer) {
    %elastic_load_balancer {
        # Scenario 2
        LoadBalancerAttributes exists
        LoadBalancerAttributes is_list
        LoadBalancerAttributes not empty

        # Scenario 3, 4 and 5
        some LoadBalancerAttributes[*] {
            Key exists
            Value exists

            Key == "deletion_protection.enabled"
            Value in [ true, "true" ]
        }
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists  or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```
CT.ELASTICLOADBALANCING.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Type: application
    Subnets:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsSupport: 'true'
  EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.0.0/24
  AvailabilityZone:
    Fn::Select:
    - 0
    - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.1.0/24
  AvailabilityZone:
    Fn::Select:
    - 1
    - Fn::GetAZs: ''

ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
[CT.ELASTICLOADBALANCING.PR.6] Require that application and network load balancer access logging is activated

This control checks whether your Elastic Load Balancing (ELB) application and network load balancers have logging activated.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancingV2::LoadBalancer
- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.6 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.6 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.6 example templates](#)

Explanation

Elastic Load Balancing provides access logs that capture detailed information about requests sent to your load balancer. Each log contains information such as the time the request was received, the client's IP address, latencies, request paths, and server responses. You can use these access logs to analyze traffic patterns and to troubleshoot issues.
Usage considerations

- This control applies only to ELB load balancer types of application and network.

Remediation for rule failure

Set the load balancer attribute `access_logs.s3.enabled` to `true`, and set `access_logs.s3.bucket` to reach an S3 bucket that's configured to receive application load balancer or network load balancer access logs.

The examples that follow show how to implement this remediation.

**Application Load Balancer - Example**

Application Load Balancer configured with access logging activated. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ApplicationLoadBalancer": {
        "Type": "AWS::ElasticLoadBalancingV2::LoadBalancer",
        "Properties": {
            "Scheme": "internal",
            "Subnets": [
                {
                    "Ref": "SubnetOne"
                },
                {
                    "Ref": "SubnetTwo"
                }
            ],
            "IpAddressType": "ipv4",
            "Type": "application",
            "LoadBalancerAttributes": [
                {
                    "Key": "access_logs.s3.enabled",
                    "Value": true
                }
            ]
        }
    }
}
```
YAML example

```yaml
ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
      - !Ref 'SubnetOne'
      - !Ref 'SubnetTwo'
    IpAddressType: ipv4
    Type: application
    LoadBalancerAttributes:
      - Key: access_logs.s3.enabled
        Value: true
      - Key: access_logs.s3.bucket
        Value: !Ref 'LoggingBucket'
```

The examples that follow show how to implement this remediation.

**Network Load Balancer - Example**

Network Load Balancer configured with access logging activated. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "NetworkLoadBalancer": {
"Key": "access_logs.s3.bucket",
"Value": {
    "Ref": "LoggingBucket"
  }
}
```

Proactive controls
"Type": "AWS::ElasticLoadBalancingV2::LoadBalancer",
"Properties": {
  "Scheme": "internal",
  "Subnets": [
    {
      "Ref": "SubnetOne"
    },
    {
      "Ref": "SubnetTwo"
    }
  ],
  "IpAddressType": "ipv4",
  "Type": "network",
  "LoadBalancerAttributes": [
    {
      "Key": "access_logs.s3.enabled",
      "Value": true
    },
    {
      "Key": "access_logs.s3.bucket",
      "Value": {
        "Ref": "LoggingBucket"
      }
    }
  ]
}

YAML example

NetworkLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
      - !Ref 'SubnetOne'
      - !Ref 'SubnetTwo'
    IpAddressType: ipv4
    Type: network
  LoadBalancerAttributes:
CT.ELASTICLOADBALANCING.PR.6 rule specification

# ###################################
##       Rule Specification        ##
###################################
#
# Rule Identifier:
#   elbv2_logging_enabled_check
#
# Description:
#   This control checks whether your Elastic Load Balancing (ELB) application and
#   network load balancers have logging activated.
#
# Reports on:
#   AWS::ElasticLoadBalancingV2::LoadBalancer
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any ElasticLoadBalancingV2
#          LoadBalancer resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an ElasticLoadBalancingV2 LoadBalancer
#          resource
#     And: 'Type' is set to a value other than 'application' or 'network'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an ElasticLoadBalancingV2 LoadBalancer resource
#   And: The LoadBalancer is of type 'application' or 'network'
#   And: 'LoadBalancerAttributes' has not been provided or is an empty list
#   Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an ElasticLoadBalancingV2 LoadBalancer resource
#   And: The LoadBalancer is of type 'application' or 'network'
#   And: A 'LoadBalancerAttributes' with Key 'access_logs.s3.enabled' and 'access_logs.s3.bucket'
#        has not been provided
#   Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an ElasticLoadBalancingV2 LoadBalancer resource
#   And: The LoadBalancer is of type 'application' or 'network'
#   And: A 'LoadBalancerAttributes' with Key 'access_logs.s3.enabled' and 'access_logs.s3.bucket'
#        has been provided
#   And: 'access_logs.s3.enabled' is set to bool(false) or string(false)
#   Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an ElasticLoadBalancingV2 LoadBalancer resource
#   And: The LoadBalancer is of type 'application' or 'network'
#   And: A 'LoadBalancerAttributes' with Key 'access_logs.s3.enabled' and 'access_logs.s3.bucket'
#        has been provided
#   And: 'access_logs.s3.enabled' is set to bool(true) or string(true)
#   And: 'access_logs.s3.bucket' is missing or an empty string value
#   Then: FAIL
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an ElasticLoadBalancingV2 LoadBalancer resource
# And: The LoadBalancer is of type 'application'
# And: A 'LoadBalancerAttributes' with Key 'access_logs.s3.enabled' has been provided
# And: 'access_logs.s3.enabled' is set to bool(true) or string(true)
# And: 'access_logs.s3.bucket' is provided and a non-empty string value or valid local reference
# Then: PASS

# Constants
#
let ELASTIC_LOAD_BALANCER_V2_TYPE = "AWS::ElasticLoadBalancingV2::LoadBalancer"
let INPUT_DOCUMENT = this

# Assignments
#
let elastic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_V2_TYPE ]

# Primary Rules
#
rule elbv2_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
  %elastic_load_balancers not empty {
    check(%elastic_load_balancers.Properties)
    "<<
      [CT.ELASTICLOADBALANCING.PR.6]: Require that application and network load balancer access logging is activated
      [FIX]: Set the load balancer attribute 'access_logs.s3.enabled' to 'true', and set 'access_logs.s3.bucket' to reach an Amazon S3 bucket that's configured to receive application load balancer or network load balancer access logs.
    >>
  }
rule elbv2_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_V2_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_V2_TYPE.resourceProperties)
  "<<
    [CT.ELASTICLOADBALANCING.PR.6]: Require that application and network load balancer access logging is activated
[FIX]: Set the load balancer attribute 'access_logs.s3.enabled' to 'true', and set 'access_logs.s3.bucket' to reach an Amazon S3 bucket that's configured to receive application load balancer or network load balancer access logs.

```plaintext
rule check(elastic_load_balancer) {
  %elastic_load_balancer[ Type in ["application", "network"] ] {
    # Scenario 3
    LoadBalancerAttributes exists
    LoadBalancerAttributes is_list
    LoadBalancerAttributes not empty

    # Scenario 4, 5, 6 and 7
    some LoadBalancerAttributes[*] {
      Key exists
      Value exists

      Key == "access_logs.s3.enabled"
      Value in [ true, "true" ]
    }

    some LoadBalancerAttributes[*] {
      Key exists
      Value exists

      Key == "access_logs.s3.bucket"
      check_is_string_and_not_empty(Value) or
      check_local_references(%INPUT_DOCUMENT, Value, "AWS::S3::Bucket")
    }
  }
}
```

# Utility Rules

```plaintext
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
CT.ELASTICLOADBALANCING.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Mappings:
RegionToELBAccountId:
    us-east-1:
        AccountId: '127311923021'
    us-west-1:
        AccountId: '027434742980'
    us-west-2:
        AccountId: '797873946194'
    ca-central-1:
        AccountId: '985666609251'
    eu-west-1:
        AccountId: '156460612806'
    ap-northeast-1:
        AccountId: '582318560864'
    ap-northeast-2:
        AccountId: '600734575887'
    ap-southeast-1:
        AccountId: '114774131450'
    ap-southeast-2:
        AccountId: '783225319266'
    ap-south-1:
        AccountId: '718504428378'
    us-east-2:
        AccountId: '033677994240'
    sa-east-1:
        AccountId: '507241528517'
    eu-central-1:
        AccountId: '054676820928'
    af-south-1:
        AccountId: '098369216593'
    ap-east-1:
        AccountId: '754344448648'
    ap-southeast-3:
        AccountId: '589379963580'
    ap-northeast-3:
        AccountId: '383597477331'
    eu-west-2:
        AccountId: '652711504416'
    eu-south-1:
        AccountId: '635631232127'
    eu-west-3:
        AccountId: '009996457667'
    eu-north-1:
        AccountId: '897822967062'
    me-south-1:
AccountId: '076674570225'
us-gov-west-1:
  AccountId: '048591011584'
us-gov-east-1:
  AccountId: '190560391635'
RegionToARNPrefix:
  us-east-1:
    ARNPrefix: 'arn:aws:'
  us-west-1:
    ARNPrefix: 'arn:aws:'
  us-west-2:
    ARNPrefix: 'arn:aws:'
  ca-central-1:
    ARNPrefix: 'arn:aws:'
  eu-west-1:
    ARNPrefix: 'arn:aws:'
  ap-northeast-1:
    ARNPrefix: 'arn:aws:'
  ap-northeast-2:
    ARNPrefix: 'arn:aws:'
  ap-southeast-1:
    ARNPrefix: 'arn:aws:'
  ap-southeast-2:
    ARNPrefix: 'arn:aws:'
  ap-south-1:
    ARNPrefix: 'arn:aws:'
  us-east-2:
    ARNPrefix: 'arn:aws:'
  sa-east-1:
    ARNPrefix: 'arn:aws:'
  eu-central-1:
    ARNPrefix: 'arn:aws:'
  af-south-1:
    ARNPrefix: 'arn:aws:'
  ap-east-1:
    ARNPrefix: 'arn:aws:'
  ap-southeast-3:
    ARNPrefix: 'arn:aws:'
  ap-northeast-3:
    ARNPrefix: 'arn:aws:'
  eu-west-2:
    ARNPrefix: 'arn:aws:'
  eu-south-1:
    ARNPrefix: 'arn:aws:'

Proactive controls
eu-west-3:
  ARNPrefix: 'arn:aws:'
eu-north-1:
  ARNPrefix: 'arn:aws:'
me-south-1:
  ARNPrefix: 'arn:aws:'
us-gov-west-1:
  ARNPrefix: 'arn:aws-us-gov:'
us-gov-east-1:
  ARNPrefix: 'arn:aws-us-gov:'

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      - Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      - Fn::Select:
      - 0
      - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      - Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      - Fn::Select:
      - 1
      - Fn::GetAZs: ''
LoggingBucket:
  Type: AWS::S3::Bucket
LoggingBucketPolicy:
  Type: AWS::S3::BucketPolicy
  Properties:
    Bucket:
      - Ref: LoggingBucket
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsSupport: 'true'
  EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''

ApplicationLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
      - Ref: SubnetOne
      - Ref: SubnetTwo
    IpAddressType: ipv4
    Type: application

[CT.ELASTICLOADBALANCING(PR.7)] Require any classic load balancer to have multiple Availability Zones configured

This control checks whether an Elastic Load Balancing (ELB) classic load balancer has been configured with multiple Availability Zones.

- **Control objective:** Improve availability
Implementation: AWS CloudFormation Guard Rule

Control behavior: Proactive

Resource types: AWS::ElasticLoadBalancing::LoadBalancer

AWS CloudFormation guard rule: [CT.ELASTICLOADBALANCING.PR.7 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.7 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.7 example templates](#)

Explanation

A Classic Load Balancer can be set up to distribute incoming requests across Amazon EC2 instances in a single Availability Zone or multiple Availability Zones. A Classic Load Balancer that does not span multiple Availability Zones is unable to redirect traffic to targets in another Availability Zone, in case the sole configured Availability Zone becomes unavailable.

Remediation for rule failure

Configure Classic Load Balancers with two or more subnets or Availability Zones.

The examples that follow show how to implement this remediation.

Classic Load Balancer - Example One

Classic Load Balancer configured with two Availability Zones. The example is shown in JSON and in YAML.

JSON example

```
{
    "ClassicLoadBalancer": {
        "Type": "AWS::ElasticLoadBalancing::LoadBalancer",
        "Properties": {
            "Scheme": "internet-facing",
            "Listeners": [
                
            
```
"InstancePort": "80",
"InstanceProtocol": "HTTP",
"LoadBalancerPort": "443",
"Protocol": "HTTPS",
"PolicyNames": [
  "Sample-SSLNegotiation-Policy"
],
"SSLCertificateId": {
  "Ref": "ACMCertificate"
}
],
"Policies": [
{
  "PolicyName": "Sample-SSLNegotiation-Policy",
  "PolicyType": "SSLNegotiationPolicyType",
  "Attributes": [
    {
      "Name": "Reference-Security-Policy",
      "Value": "ELBSecurityPolicy-TLS-1-2-2017-01"
    }
  ]
}
],
"AvailabilityZones": [
{
  "Fn::Select": [0,
    {
      "Fn::GetAZs": ""
    }
  ],
  {
    "Fn::Select": [1,
      {
        "Fn::GetAZs": ""
      }
    ]
  }
}
]
YAML example

```yaml
ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internet-facing
    Listeners:
      - InstancePort: '80'
        InstanceProtocol: HTTP
        LoadBalancerPort: '443'
        Protocol: HTTPS
        PolicyNames:
          - Sample-SSLNegotiation-Policy
        SSLCertificateId: !Ref 'ACMCertificate'
    Policies:
      - PolicyName: Sample-SSLNegotiation-Policy
        PolicyType: SSLNegotiationPolicyType
        Attributes:
          - Name: Reference-Security-Policy
            Value: ELBSecurityPolicy-TLS-1-2-2017-01
    AvailabilityZones:
      - !Select
        0
        - !GetAZs ''
      - !Select
        1
        - !GetAZs ''
```

The examples that follow show how to implement this remediation.

**Classic Load Balancer - Example Two**

Classic Load Balancer configured with two subnets. The example is shown in JSON and in YAML.

**JSON example**
{  
    "ClassicLoadBalancer": {  
        "Type": "AWS::ElasticLoadBalancing::LoadBalancer",  
        "Properties": {  
            "Scheme": "internet-facing",  
            "Listeners": [  
                {  
                    "InstancePort": "80",  
                    "InstanceProtocol": "HTTP",  
                    "LoadBalancerPort": "443",  
                    "Protocol": "HTTPS",  
                    "PolicyNames": [  
                        "Sample-SSLNegotiation-Policy"  
                    ],  
                    "SSLCertificateId": {  
                        "Ref": "ACMCertificate"  
                    }  
                }  
            ],  
            "Policies": [  
                {  
                    "PolicyName": "Sample-SSLNegotiation-Policy",  
                    "PolicyType": "SSLNegotiationPolicyType",  
                    "Attributes": [  
                        {  
                            "Name": "Reference-Security-Policy",  
                            "Value": "ELBSecurityPolicy-TLS-1-2-2017-01"  
                        }  
                    ]  
                }  
            ],  
            "AvailabilityZones": [  
                {  
                    "Fn::Select": [  
                        0,  
                        {  
                            "Fn::GetAZs": ""  
                        }  
                    ]  
                },  
                {  
                    "Fn::Select": [  
                        1,  
                        {  
                            "Fn::GetAZs": ""  
                        }  
                    ]  
                }  
            ]  
        }  
    }  
}
"Fn::GetAZs": ""

YAML example

ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internet-facing
    Listeners:
      - InstancePort: '80'
        InstanceProtocol: HTTP
        LoadBalancerPort: '443'
        Protocol: HTTPS
    PolicyNames:
      - Sample-SSLNegotiation-Policy
    SSLCertificateId: !Ref 'ACMCertificate'
  Policies:
    - PolicyName: Sample-SSLNegotiation-Policy
      PolicyType: SSLNegotiationPolicyType
      Attributes:
        - Name: Reference-Security-Policy
          Value: ELBSecurityPolicy-TLS-1-2-2017-01
  AvailabilityZones:
    - !Select
      - 0
    - !GetAZs ''
    - !Select
      - 1
    - !GetAZs ''
CT.ELASTICLOADBALANCING.PR.7 rule specification

# ####################################################
##       Rule Specification        ##
####################################################
#
# Rule Identifier:
#   elb_multiple_az_check
#
# Description:
#   This control checks whether an Elastic Load Balancing (ELB) Classic Load Balancer has been configured with multiple Availability Zones.
#
# Reports on:
#   AWS::ElasticLoadBalancing::LoadBalancer
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Elastic Load Balancing load balancer resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elastic Load Balancing load balancer resource
#     And: Neither 'AvailabilityZones' or 'Subnets' have been specified
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elastic Load Balancing load balancer resource
#     And: 'AvailabilityZones' been specified on the Elastic Load Balancing load balancer resource

Proactive controls
# And: The number of entries in 'AvailabilityZones' is < 2 or the number of unique 'AvailabilityZones' provided is less than 2 (< 2)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Load Balancing load balancer resource
# And: 'Subnets' been specified on the Elastic Load Balancing load balancer resource
# And: The number of entries in 'Subnets' is < 2
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Load Balancing load balancer resource
# And: 'AvailabilityZones' been specified on the Elastic Load Balancing load balancer resource
# And: The number of entries in 'AvailabilityZones' is >= 2
# Then: PASS
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Load Balancing load balancer resource
# And: 'Subnets' been specified on the Elastic Load Balancing load balancer resource
# And: The number of entries in 'Subnets' is >= 2
# Then: PASS

# Constants
#
let ELASTIC_LOAD_BALANCER_TYPE = "AWS::ElasticLoadBalancing::LoadBalancer"
let INPUT_DOCUMENT = this

# Assignments
#
let classic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALancer_TYPE ]

# Proactive controls
# rule elb_multiple_az_check when is_cfn_template(%INPUT_DOCUMENT)
%classic_load_balancers not empty {

    check(%classic_load_balancers.Properties)
    <<
    [CT.ELASTICLOADBALANCING.PR.7]: Require any classic load balancer to have multiple Availability Zones configured
    [FIX]: Configure Classic Load Balancers with two or more subnets or Availability Zones.
    >>
}

rule elb_multiple_az_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_TYPE) {

    check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_TYPE.resourceProperties)
    <<
    [CT.ELASTICLOADBALANCING.PR.7]: Require any classic load balancer to have multiple Availability Zones configured
    [FIX]: Configure Classic Load Balancers with two or more subnets or Availability Zones.
    >>
}

# Parameterized Rules

# Parameterized Rules

# rule check(classic_load_balancer) {
%classic_load_balancer {
    # Scenario 2
    AvailabilityZones exists or
    Subnets exists

    when AvailabilityZones exists {
        # Scenarios 3 and 5
        two_or_more_entries(AvailabilityZones)
        AvailabilityZones[0] not in AvailabilityZones[1]
    }

    when Subnets exists {
        # Scenarios 4 and 6
        two_or_more_entries(Subnets)
    }
}
CT.ELASTICLOADBALANCING.PR.7 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  ACMCertificate:
    Type: "AWS::CertificateManager::Certificate"
    Properties:
      DomainName: example.com
      ValidationMethod: DNS
      DomainValidationOptions:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
- VPC:
  - Type: AWS::EC2::VPC
  - Properties:
    - CidrBlock: 10.0.0.0/16
    - EnableDnsSupport: 'true'
    - EnableDnsHostnames: 'true'
- Subnet:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.0.0/24
  AvailabilityZone:
    Fn::Select:
      - 0
      - Fn::GetAZs: '
ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
Properties:
  Scheme: internal
  Listeners:
    - Protocol: HTTP
      InstancePort: 80
      LoadBalancerPort: 80
  Subnets:
    - Ref: Subnet

[CT.ELASTICLOADBALANCING.PR.8] Require any classic load balancer SSL/HTTPS listener to have a certificate provided by AWS Certificate Manager

This control checks whether classic load balancers use HTTPS/SSL certificates provided by AWS Certificate Manager.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancing::LoadBalancer
- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.8 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.8 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.8 example templates](#)
**Explanation**

To create a certificate, you can use either ACM or a tool that supports the SSL and TLS protocols, such as OpenSSL. Security Hub recommends that you use ACM to create or import certificates for your load balancer.

ACM integrates with Classic Load Balancers, so that you can deploy the certificate on your load balancer. You also should renew these certificates automatically.

**Usage considerations**

- This control applies only to Classic Load Balancers configured with HTTPS or SSL listeners.

**Remediation for rule failure**

Configure Classic Load Balancers to use certificates provided by AWS Certificate Manager (ACM).

The examples that follow show how to implement this remediation.

**Classic Load Balancer - Example**

Classic Load Balancer configured with an HTTPS listener and AWS Certificate Manager SSL certificate. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ClassicLoadBalancer": {
        "Type": "AWS::ElasticLoadBalancing::LoadBalancer",
        "Properties": {
            "Scheme": "internal",
            "Subnets": [
                { "Ref": "SubnetOne" },
                { "Ref": "SubnetTwo" }
            ]
        }
    }
}
```
YAML example

ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
      - !Ref 'SubnetOne'
      - !Ref 'SubnetTwo'
  Policies:
- PolicyName: Example-SSLNegotiation-Policy
  PolicyType: SSLNegotiationPolicyType
  Attributes:
  - Name: Reference-Security-Policy
    Value: ELBSecurityPolicy-TLS-1-2-2017-01

Listeners:
- InstancePort: '80'
  InstanceProtocol: HTTP
  LoadBalancerPort: '443'
  Protocol: HTTPS
  PolicyNames:
  - Example-SSLNegotiation-Policy
  SSLCertificateId: !Ref 'ACMCertificate'

CT.ELASTICLOADBALANCING.PR.8 rule specification

```
#ipython
#
### Rule Specification ###
#
# Rule Identifier:
# elb_acm_certificate_required_check
#
# Description:
# This control checks whether Classic Load Balancers use HTTPS/SSL certificates provided by AWS Certificate Manager.
#
# Reports on:
# AWS::ElasticLoadBalancing::LoadBalancer
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
```
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Load Balancing load balancer resource
# And: There are no HTTPS or SSL 'Listeners' configured on the load balancer resource
# Then: SKIP

# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Load Balancing load balancer resource
# And: There are one or more HTTPS or SSL 'Listeners' configured on the load balancer resource
# And: 'SSLCertificateId' on load balancer HTTPS or SSL 'Listeners' is missing or not a valid ACM certificate ARN
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Load Balancing load balancer resource
# And: There are one or more HTTPS or SSL 'Listeners' configured on the load balancer resource
# And: 'SSLCertificateId' matches an ACM certificate ARN for all 'HTTPS' and 'SSL' 'Listeners'
# Then: PASS

# Constants
#
let ELASTIC_LOAD_BALANCER_TYPE = "AWS::ElasticLoadBalancing::LoadBalancer"
let ACM_CERTIFICATE_ARN_PATTERN = /arn:aws[a-z0-9\-]*:acm:[a-z0-9\-\+]:\d{12}:certificate\[/\w\-\]+/[
let SECURE_LISTENER_PROTOCOLS = ["HTTPS", "SSL"]
let INPUT_DOCUMENT = this

# Assignments
#
let classic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_TYPE ]

# Primary Rules
#
rule elb_acm_certificate_required_check when is_cfn_template(%INPUTDOCUMENT)
  %classic_load_balancers not empty {
    check(%classic_load_balancers.Properties)
    <<
    [CT.ELASTICLOADBALANCING.PR.8]: Require any classic load balancer SSL/HTTPS listener to have a certificate provided by AWS Certificate Manager
    [FIX]: Configure Classic Load Balancers to use certificates provided by AWS Certificate Manager (ACM).
    >>
  }

rule elb_acm_certificate_required_check when is_cfn_hook(%INPUTDOCUMENT, %ELASTIC_LOAD_BALANCER_TYPE) {
  check(%INPUTDOCUMENT.%ELASTIC_LOAD_BALANCER_TYPE.resourceProperties)
  <<
  [CT.ELASTICLOADBALANCING.PR.8]: Require any classic load balancer SSL/HTTPS listener to have a certificate provided by AWS Certificate Manager
  [FIX]: Configure Classic Load Balancers to use certificates provided by AWS Certificate Manager (ACM).
  >>
}

# Parameterized Rules
#
rule check(classic_load_balancer) {
  %classic_load_balancer [
    filter_load_balancer_with_listeners(this)
  ] {
    Listeners [
      filter_secure_listeners(this)
    ] {
      # Scenarios 3 and 4
      SSLCertificateId exists
      SSLCertificateId == %ACM_CERTIFICATE_ARN_PATTERN or
      check_local_references(%INPUTDOCUMENT, SSLCertificateId, "AWS::CertificateManager::Certificate")
    }
  }
}
rule filter_load_balancer_with_listeners(classic_load_balancer) {
    %classic_load_balancer {
        Listeners exists
        Listeners is_list
        Listeners not empty
    }
}

rule filter_secure_listeners(listener) {
    %listener {
        Protocol exists
        Protocol in %SECURE_LISTENER_PROTOCOLS
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_resource_type)
            <<Local Stack reference was invalid>>
        }
    }
}
rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    %referenced_resource not empty
    %referenced_resource {
        Type == %referenced_resource_type
    }
}

CT.ELASTICLOADBALANCING.PR.8 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
    Type: AWS::EC2::VPC
    Properties:
        CidrBlock: 10.0.0.0/16
        EnableDnsSupport: 'true'
        EnableDnsHostnames: 'true'
SubnetOne:
    Type: AWS::EC2::Subnet
    Properties:
        VpcId:
            Ref: VPC
        CidrBlock: 10.0.0.0/24
        AvailabilityZone:
            Fn::Select: 0
            - Fn::GetAZs: ''
SubnetTwo:
    Type: AWS::EC2::Subnet
    Properties:
        VpcId:
            Ref: VPC
        CidrBlock: 10.0.1.0/24
        AvailabilityZone:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
Properties:
- CidrBlock: 10.0.0.0/16
- EnableDnsSupport: 'true'
- EnableDnsHostnames: 'true'

SubnetOne:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.0.0/24
  AvailabilityZone:
    Fn::Select:
    - 0
    - Fn::GetAZs: ''

SubnetTwo:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.1.0/24
  AvailabilityZone:
    Fn::Select:
    - 1
    - Fn::GetAZs: ''

ClassicLoadBalancer:
Type: AWS::ElasticLoadBalancing::LoadBalancer
Properties:
  Scheme: internal
  Subnets:
    - Ref: SubnetOne
    - Ref: SubnetTwo
  Policies:
    - PolicyName: Example-SSLNegotiation-Policy
      PolicyType: SSLNegotiationPolicyType
      Attributes:
        - Name: Reference-Security-Policy
          Value: ELBSecurityPolicy-TLS-1-2-2017-01
  Listeners:
    - InstancePort: '80'
      InstanceProtocol: HTTP
      LoadBalancerPort: '443'
      Protocol: HTTPS
      PolicyNames:
        - Example-SSLNegotiation-Policy
[CT.ELASTICLOADBALANCING.PR.9] Require that an AWS ELB Application or Classic Load Balancer listener is configured with HTTPS or TLS termination

This control checks whether your Elastic Load Balancing (ELB) Classic Load Balancer front-end listeners are configured with HTTPS or SSL protocols.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancing::LoadBalancer
- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.9 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.9 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.9 example templates](#)

**Explanation**

Before you start to use a load balancer, you must add one or more listeners. A listener is a process that uses the configured protocol and port to check for connection requests. Listeners can support HTTP and HTTPS/TLS protocols. You should always use an HTTPS or TLS listener, so that the load balancer does the work of encryption and decryption in transit.

**Remediation for rule failure**

Configure Classic Load Balancer front-end listeners with HTTPS or SSL protocols.

The examples that follow show how to implement this remediation.
Classic Load Balancer - Example One

Classic Load Balancer configured with an HTTPS Listener. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "LoadBalancer": {
        "Type": "AWS::ElasticLoadBalancing::LoadBalancer",
        "Properties": {
            "Scheme": "internal",
            "Subnets": [
                {
                    "Ref": "Subnet"
                }
            ],
            "Listeners": [
                {
                    "Protocol": "HTTPS",
                    "SSLCertificateId": {
                        "Ref": "ACMCertificate"
                    },
                    "InstancePort": 80,
                    "LoadBalancerPort": 443
                }
            ]
        }
    }
}
```

**YAML example**

```
LoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
      - !Ref 'Subnet'
  Listeners:
```
The examples that follow show how to implement this remediation.

**Classic Load Balancer - Example Two**

Classic Load Balancer configured with an SSL Listener. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "LoadBalancer": {
        "Type": "AWS::ElasticLoadBalancing::LoadBalancer",
        "Properties": {
            "Scheme": "internal",
            "Subnets": [ {
                "Ref": "Subnet"
            } ],
            "Listeners": [ {
                "Protocol": "SSL",
                "SSLCertificateId": { "Ref": "ACMCertificate" },
                "InstancePort": 80,
                "LoadBalancerPort": 443
            } ]
        }
    }
}
```

**YAML example**

```yaml
Proactive controls

```
CT.ELASTICLOADBALANCING.PR.9 rule specification

# ########################################################################
## Rule Specification ##
# ########################################################################

# Rule Identifier:
# elb_tls_https_listeners_only_check

# Description:
# Checks whether Classic Load Balancer front-end listeners are configured with HTTPS or SSL protocols.

# Reports on:
# AWS::ElasticLoadBalancing::LoadBalancer

# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any Elastic Load Balancing LoadBalancer resources  
Then: SKIP

Scenario: 2

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document  
And: The input document contains an ElasticLoadBalancing LoadBalancer resource  
And: 'Listeners' has not been provided or is provided with a value of an empty list  
Then: FAIL

Scenario: 3

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document  
And: The input document contains an ElasticLoadBalancing LoadBalancer resource  
And: 'Protocol' on LoadBalancer 'Listeners' is not set to 'HTTPS' or 'SSL'  
Then: FAIL

Scenario: 4

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document  
And: The input document contains an ElasticLoadBalancing LoadBalancer resource  
And: 'Protocol' is set to 'HTTPS' or 'SSL' for all 'Listeners'  
Then: PASS

# Constants

let ELASTIC_LOAD_BALANCER_TYPE = "AWS::ElasticLoadBalancing::LoadBalancer"
let INPUT_DOCUMENT = this

# Assignments

let classic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_TYPE ]

# Primary Rules

rule elb_tls_https_listeners_only_check when is_cfn_template(%INPUT_DOCUMENT)
%classic_load_balancers not empty {

    check(%classic_load_balancers.Properties)  
    <=
    [CT.ELASTICLOADBALANCING.PR.9]: Require that an AWS ELB Application or Classic Load Balancer listener is configured with HTTPS or TLS termination
[FIX]: Configure Classic Load Balancer front-end listeners with HTTPS or SSL protocols.

rule elb_tls_https_listeners_only_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_TYPE.resourceProperties)
  <=
  [CT.ELASTICLOADBALANCING.PR.9]: Require that an AWS ELB Application or Classic Load Balancer listener is configured with HTTPS or TLS termination
  [FIX]: Configure Classic Load Balancer front-end listeners with HTTPS or SSL protocols.
  >>
}

# # Parameterized Rules #
#
rule check(classic_load_balancer) {
  %classic_load_balancer {
    # Scenario 2
    Listeners exists
    Listeners is_list
    Listeners not empty

    # Scenarios 3 and 4
    Listeners[*] {
      Protocol exists
      Protocol in ["HTTPS", "SSL"]
    }
  }
}

# # Utility Rules #
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.ELASTICLOADBALANCING.PR.9 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
ClassicLoadBalancer:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
[CT.ELASTICLOADBALANCING.PR.10] Require an ELB application or classic load balancer to have logging activated

This control checks whether Classic Load Balancers have logging enabled.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancing::LoadBalancer
- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.10 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.10 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.10 example templates](#)

**Explanation**

Elastic Load Balancing provides access logs that capture detailed information about requests sent to your load balancer. Each log contains information such as the time the request was received, the
client's IP address, latencies, request paths, and server responses. You can use these access logs to analyze traffic patterns and to troubleshoot issues.

**Remediation for rule failure**

Set an AccessLoggingPolicy and provide an S3BucketName with an Amazon S3 bucket configured to receive classic load balancer access logs.

The examples that follow show how to implement this remediation.

**Classic Load Balancer - Example**

Classic Load Balancer configured with an HTTPS listener and access logging. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ClassicLoadBalancer": {
        "Type": "AWS::ElasticLoadBalancing::LoadBalancer",
        "Properties": {
            "Scheme": "internal",
            "Listeners": [
                {
                    "Protocol": "HTTPS",
                    "InstancePort": 80,
                    "LoadBalancerPort": 443
                }
            ],
            "Subnets": [
                {
                    "Ref": "Subnet"
                }
            ],
            "AccessLoggingPolicy": {
                "Enabled": true,
                "S3BucketName": {
                    "Ref": "LoggingBucket"
                }
            }
        }
    }
}
```
YAML example

ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internal
    Listeners:
      - Protocol: HTTPS
        InstancePort: 80
        LoadBalancerPort: 443
    Subnets:
      - !Ref 'Subnet'
  AccessLoggingPolicy:
    Enabled: true
    S3BucketName: !Ref 'LoggingBucket'

CT.ELASTICLOADBALANCING.PR.10 rule specification

# #######################################################################
##       Rule Specification       ##
#######################################################################
#
# Rule Identifier:
#   elb_logging_enabled_check
#
# Description:
#   This control checks whether Classic Load Balancers have logging enabled.
#
# Reports on:
#   AWS::ElasticLoadBalancing::LoadBalancer
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#

# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Elastic Load Balancing load balancer resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elastic Load Balancing load balancer resource
#     And: 'AccessLoggingPolicy' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elastic Load Balancing load balancer resource
#     And: 'AccessLoggingPolicy' has been provided
#     And: 'Enabled' in 'AccessLoggingPolicy' is missing or has been set to bool(false) or 'S3BucketName' is missing
#     or empty string value
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elastic Load Balancing load balancer resource
#     And: 'AccessLoggingPolicy' has been provided
#     And: 'Enabled' has been provided in 'AccessLoggingPolicy' and has been set to bool(true)
#     And: 'S3BucketName' has been provided in 'AccessLoggingPolicy' as a non-empty string value or
#     valid local reference
#     Then: PASS

#
# Constants
#
let ELASTIC_LOAD_BALANCER_TYPE = "AWS::ElasticLoadBalancing::LoadBalancer"
let INPUT_DOCUMENT = this
# Assignments

let classic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_TYPE ]

# Primary Rules

rule elb_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%classic_load_balancers not empty {
  check(%classic_load_balancers.Properties)
  <<
  [CT.ELASTICLOADBALANCING.PR.10]: Require an ELB application or classic load balancer to have logging activated
  [FIX]: Set an 'AccessLoggingPolicy' and provide an 'S3BucketName' with an Amazon S3 bucket configured to receive classic load balancer access logs.
  >>
}

rule elb_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_TYPE.resourceProperties)
  <<
  [CT.ELASTICLOADBALANCING.PR.10]: Require an ELB application or classic load balancer to have logging activated
  [FIX]: Set an 'AccessLoggingPolicy' and provide an 'S3BucketName' with an Amazon S3 bucket configured to receive classic load balancer access logs.
  >>
}

# Parameterized Rules

rule check(classic_load_balancer) {
  %classic_load_balancer {
    # Scenario 2
    AccessLoggingPolicy exists
    AccessLoggingPolicy is_struct

    AccessLoggingPolicy {
      # Scenario 3 and 4
      Enabled exists
      Enabled == true
  }
S3BucketName exists
    check_is_string_and_not_empty(S3BucketName) or
    check_local_references(%INPUT_DOCUMENT, S3BucketName, "AWS::S3::Bucket")
  }
}

# # Utility Rules #
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != ^A\s*$/
  }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
  %reference_properties {
    'Fn::GetAtt' {
      query_for_resource(%doc, this[0], %referenced_resource_type)
      <<Local Stack reference was invalid>>
    } or Ref {
      query_for_resource(%doc, this, %referenced_resource_type)
      <<Local Stack reference was invalid>>
    }
  }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
  let referenced_resource = %doc.Resources[ keys == %resource_key ]
  %referenced_resource not empty
  %referenced_resource {
CT.ELASTICLOADBALANCING.PR.10 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Mappings:
RegionToELBAccountId:
  us-east-1:
    AccountId: '127311923021'
  us-west-1:
    AccountId: '027434742980'
  us-west-2:
    AccountId: '797873946194'
  ca-central-1:
    AccountId: '98566609251'
  eu-west-1:
    AccountId: '156460612806'
  ap-northeast-1:
    AccountId: '582318560864'
  ap-northeast-2:
    AccountId: '600743575887'
  ap-southeast-1:
    AccountId: '114774131450'
  ap-southeast-2:
    AccountId: '783225319266'
  ap-south-1:
    AccountId: '718504428378'
  us-east-2:
    AccountId: '033677994240'
  sa-east-1:
    AccountId: '507241528517'
  eu-central-1:
    AccountId: '054676820928'
  af-south-1:
    AccountId: '098369216593'
ap-east-1:
    AccountId: '754344448648'
ap-southeast-3:
    AccountId: '589379963580'
ap-northeast-3:
    AccountId: '383597477331'
eu-west-2:
    AccountId: '652711504416'
eu-south-1:
    AccountId: '635631232127'
eu-west-3:
    AccountId: '009996457667'
eu-north-1:
    AccountId: '897822967062'
me-south-1:
    AccountId: '076674570225'
us-gov-west-1:
    AccountId: '048591011584'
us-gov-east-1:
    AccountId: '190560391635'
RegionToARNPrefix:
    us-east-1:
        ARNPrefix: 'arn:aws:'
    us-west-1:
        ARNPrefix: 'arn:aws:'
    us-west-2:
        ARNPrefix: 'arn:aws:'
    ca-central-1:
        ARNPrefix: 'arn:aws:'
    eu-west-1:
        ARNPrefix: 'arn:aws:'
    ap-northeast-1:
        ARNPrefix: 'arn:aws:'
    ap-northeast-2:
        ARNPrefix: 'arn:aws:'
    ap-southeast-1:
        ARNPrefix: 'arn:aws:'
    ap-southeast-2:
        ARNPrefix: 'arn:aws:'
    ap-south-1:
        ARNPrefix: 'arn:aws:'
    us-east-2:
        ARNPrefix: 'arn:aws:'
sa-east-1:
ARNPrefix: 'arn:aws:'
eu-central-1:
  ARNPrefix: 'arn:aws:'
af-south-1:
  ARNPrefix: 'arn:aws:'
ap-east-1:
  ARNPrefix: 'arn:aws:'
ap-southeast-3:
  ARNPrefix: 'arn:aws:'
ap-northeast-3:
  ARNPrefix: 'arn:aws:'
eu-west-2:
  ARNPrefix: 'arn:aws:'
eu-south-1:
  ARNPrefix: 'arn:aws:'
eu-west-3:
  ARNPrefix: 'arn:aws:'
eu-north-1:
  ARNPrefix: 'arn:aws:'
me-south-1:
  ARNPrefix: 'arn:aws:'
us-gov-west-1:
  ARNPrefix: 'arn:aws-us-gov:'
us-gov-east-1:
  ARNPrefix: 'arn:aws-us-gov:'

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.1.0/24
  AvailabilityZone:
    Fn::Select:
      - 1
      - Fn::GetAZs: ''

LoggingBucket:
  Type: AWS::S3::Bucket

LoggingBucketPolicy:
  Type: AWS::S3::BucketPolicy
  Properties:
    Bucket:
      Ref: LoggingBucket
    PolicyDocument:
      Version: 2012-10-17
      Statement:
        - Action:
          - 's3:PutObject'
        Effect: Allow
        Resource:
          Fn::Join:
            - ''
            - - Fn::FindInMap: [RegionToARNPrefix, !Ref 'AWS::Region', ARNPrefix]
              - 's3:::'
              - Ref: LoggingBucket
              - /AWSLogs/
              - Ref: AWS::AccountId
              - /*
        Principal:
          AWS:
            Fn::FindInMap: [RegionToELBAccountId, !Ref 'AWS::Region', AccountId]

ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internal
    Listeners:
      - Protocol: HTTP
        InstancePort: 80
        LoadBalancerPort: 80
    Subnets:
      - Ref: SubnetOne
      - Ref: SubnetTwo
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId: 
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
      - 0
      - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
      - 1
      - Fn::GetAZs: ''
ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internal
    Listeners:
[CT.ELASTICLOADBALANCING.PR.11] Require any ELB classic load balancer to have connection draining activated

This control checks whether Elastic Load Balancing (ELB) Classic Load Balancers have connection draining configured.

- **Control objective:** Improve resiliency
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancing::LoadBalancer
- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.11 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.11 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.11 example templates](#)

**Explanation**

Activating connection draining on Classic Load Balancers ensures that the load balancer stops sending requests to instances that are de-registering or unhealthy. It keeps the existing connections open. This configuration is particularly useful for instances in Auto Scaling groups, to ensure that connections aren't severed abruptly.

**Remediation for rule failure**

The examples that follow show how to implement this remediation.

**Classic Load Balancer - Example**

Classic Load Balancer configured with connection draining active. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ClassicLoadBalancer": {
        "Type": "AWS::ElasticLoadBalancing::LoadBalancer",
        "Properties": {
            "Scheme": "internal",
            "Listeners": [
                {
                    "InstancePort": "80",
                    "InstanceProtocol": "HTTP",
                    "LoadBalancerPort": "443",
                    "Protocol": "HTTPS",
                    "PolicyNames": [
                        "Example-SSLNegotiation-Policy"
                    ],
                    "SSLCertificateId": {
                        "Ref": "ACMCertificate"
                    }
                }
            ],
            "Policies": [
                {
                    "PolicyName": "Example-SSLNegotiation-Policy",
                    "PolicyType": "SSLNegotiationPolicyType",
                    "Attributes": [
                        {
                            "Name": "Reference-Security-Policy",
                            "Value": "ELBSecurityPolicy-TLS-1-2-2017-01"
                        }
                    ],
                    "Subnets": [
                        {
                            "Ref": "SubnetOne"
                        }
                    ]
                }
            ]
        }
    }
}
```
YAML example

```
ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internal
    Listeners:
      - InstancePort: '80'
        InstanceProtocol: HTTP
        LoadBalancerPort: '443'
        Protocol: HTTPS
    PolicyNames:
      - Example-SSLNegotiation-Policy
    SSLCertificateId: !Ref 'ACMCertificate'
  Policies:
    - PolicyName: Example-SSLNegotiation-Policy
      PolicyType: SSLNegotiationPolicyType
      Attributes:
        - Name: Reference-Security-Policy
          Value: ELBSecurityPolicy-TLS-1-2-2017-01
  Subnets:
    - !Ref 'SubnetOne'
    - !Ref 'SubnetTwo'
  ConnectionDrainingPolicy:
    Enabled: true
```
CT.ELASTICLOADBALANCING.PR.11 rule specification

# ###################################################################################################
#       Rule Specification       ####
# ###################################################################################################
#
# Rule Identifier:
#   elb_connection_draining_enabled_check
#
# Description:
#   This control checks whether Elastic Load Balancing (ELB) Classic Load Balancers have connection draining configured.
#
# Reports on:
#   AWS::ElasticLoadBalancing::LoadBalancer
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Elastic Load Balancing load balancer resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elastic Load Balancing load balancer resource
#     And: 'ConnectionDrainingPolicy' has not been specified
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elastic Load Balancing load balancer resource
#     And: 'ConnectionDrainingPolicy' has been specified
And: 'Enabled' in 'ConnectionDrainingPolicy' is missing or has been set to bool(false)
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elastic Load Balancing load balancer resource
And: 'ConnectionDrainingPolicy' has been specified
And: 'Enabled' in 'ConnectionDrainingPolicy' has been set to bool(true)
Then: PASS

# Constants
let ELASTIC_LOAD_BALANCER_TYPE = "AWS::ElasticLoadBalancing::LoadBalancer"
let INPUT_DOCUMENT = this

# Assignments
let classic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_TYPE ]

# Primary Rules
rule elb_connection_draining_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%classic_load_balancers not empty {
    check(%classic_load_balancers.Properties)
    <<
    [CT.ELASTICLOADBALANCING.PR.11]: Require any ELB classic load balancer to have connection draining activated
    [FIX]: Configure a 'ConnectionDrainingPolicy' on Elastic Load Balancing Classic Load Balancers.
    >>
}

rule elb_connection_draining_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_TYPE) {
    check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_TYPE.resourceProperties)
    <<
    [CT.ELASTICLOADBALANCING.PR.11]: Require any ELB classic load balancer to have connection draining activated
}
[FIX]: Configure a 'ConnectionDrainingPolicy' on Elastic Load Balancing Classic Load Balancers.

```
# Parameterized Rules

rule check(classic_load_balancer) {
  %classic_load_balancer {
    # Scenario 2
    ConnectionDrainingPolicy exists
    ConnectionDrainingPolicy is_struct

    ConnectionDrainingPolicy {
      # Scenario 3 and 4
      Enabled exists
      Enabled == true
    }
  }
}
```

```
# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

**CT.ELASTICLOADBALANCING.PR.11 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.
Resources:

VPC:
Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsSupport: 'true'
  EnableDnsHostnames: 'true'

SubnetOne:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.0.0/24
  AvailabilityZone:
    Fn::Select:
      - 0
      - Fn::GetAZs: ''

SubnetTwo:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.1.0/24
  AvailabilityZone:
    Fn::Select:
      - 1
      - Fn::GetAZs: ''

ACMCertificate:
Type: "AWS::CertificateManager::Certificate"
Properties:
  DomainName: example.com
  ValidationMethod: DNS
  DomainValidationOptions:
    - DomainName: www.example.com
      HostedZoneId: ZZZHHHWWWWAAA

ClassicLoadBalancer:
Type: AWS::ElasticLoadBalancing::LoadBalancer
Properties:
  Scheme: internal
  Listeners:
    - InstancePort: '80'
      InstanceProtocol: HTTP
LoadBalancerPort: '443'
Protocol: HTTPS
PolicyNames:
- Example-SSLNegotiation-Policy
SSLCertificateId:
  Ref: ACMCertificate
Policies:
- PolicyName: Example-SSLNegotiation-Policy
  PolicyType: SSLNegotiationPolicyType
  Attributes:
    - Name: Reference-Security-Policy
      Value: ELBSecurityPolicy-TLS-1-2-2017-01
Subnets:
- Ref: SubnetOne
- Ref: SubnetTwo
ConnectionDrainingPolicy:
  Enabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.1.0/24
AvailabilityZone:
  Fn::Select:
    - 1
  Fn::GetAZs: ''
ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
Properties:
  Scheme: internal
  Listeners:
    - Protocol: HTTP
      InstancePort: 80
      LoadBalancerPort: 80
  Subnets:
    - Ref: SubnetOne
    - Ref: SubnetTwo

[CT.ELASTICLOADBALANCING.PR.12] Require any ELB classic load balancer SSL/HTTPS listener to have a predefined security policy with a strong configuration

This control checks whether Elastic Load Balancing (ELB) Classic Load Balancer HTTPS/SSL listeners use the predefined security policy ELBSecurityPolicy-TLS-1-2-2017-01.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancing::LoadBalancer
- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.12 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.12 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.12 example templates](#)
Explanation

A security policy is a combination of SSL protocols, ciphers, and the server order preference option. Predefined policies control the ciphers, protocols, and preference orders that provide support during SSL negotiations between a client and load balancer.

Using ELBSecurityPolicy-TLS-1-2-2017-01 can help you to meet compliance and security standards that require you to turn off specific versions of SSL and TLS.

Usage considerations

- This control applies only to Elastic Load Balancing Classic Load Balancers configured with HTTPS or SSL listeners.

Remediation for rule failure

Configure Classic Load Balancer HTTPS/SSL listeners to use the predefined security policy called ELBSecurityPolicy-TLS-1-2-2017-01.

The examples that follow show how to implement this remediation.

Classic Load Balancer - Example

Classic Load Balancer configured with an HTTPS listener and SSL negotiation policy that references the ELBSecurityPolicy-TLS-1-2-2017-01 predefined security policy for classic load balancers. The example is shown in JSON and in YAML.

JSON example

```json
{
   "ClassicLoadBalancer": {
      "Type": "AWS::ElasticLoadBalancing::LoadBalancer",
      "Properties": {
         "Scheme": "internal",
         "Subnets": [ {
            "Ref": "SubnetOne"
         }, { ...
```
Proactive controls

YAML example

```
ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
      - !Ref 'SubnetOne'

```

AWS Control Tower

"Ref": "SubnetTwo"
]
"Policies": [
  {
    "PolicyName": "Example-SSLNegotiation-Policy",
    "PolicyType": "SSLNegotiationPolicyType",
    "Attributes": [
      {
        "Name": "Reference-Security-Policy",
        "Value": "ELBSecurityPolicy-TLS-1-2-2017-01"
      }
    ]
  }
],
"Listeners": [
  {
    "InstancePort": 80,
    "InstanceProtocol": "HTTP",
    "LoadBalancerPort": 443,
    "Protocol": "HTTPS",
    "SSLCertificateId": {
      "Ref": "ACMCertificate"
    },
    "PolicyNames": [
      "Example-SSLNegotiation-Policy"
    ]
  }
]
- !Ref 'SubnetTwo'

Policies:
- PolicyName: Example-SSLNegotiation-Policy
  PolicyType: SSLNegotiationPolicyType
  Attributes:
    - Name: Reference-Security-Policy
      Value: ELBSecurityPolicy-TLS-1-2-2017-01

Listeners:
- InstancePort: 80
  InstanceProtocol: HTTP
  LoadBalancerPort: 443
  Protocol: HTTPS
  SSLCertificateId: !Ref 'ACMCertificate'
  PolicyNames:
    - Example-SSLNegotiation-Policy

CT.ELASTICLOADBALANCING.PR.12 rule specification

# ###################################################################
## Rule Specification ##
# ###################################################################
#
# Rule Identifier:
#   elb_predefined_security_policy_ssl_check
#
# Description:
#   This control checks whether Elastic Load Balancing (ELB) Classic Load Balancer HTTPS/SSL listeners use the predefined security policy 'ELBSecurityPolicy-TLS-1-2-2017-01'.
#
# Reports on:
#   AWS::ElasticLoadBalancing::LoadBalancer
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document does not contain any Elastic Load Balancing
LoadBalancer resources
#       Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an Elastic Load Balancing LoadBalancer
resource
#       And: There are no HTTPS or SSL 'Listeners' configured on the Elastic Load
Balancing LoadBalancer resource
#       Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an Elastic Load Balancing LoadBalancer
resource
#       And: 'Policies' does not contain a policy with 'PolicyType' equal to
'SSLNegotiationPolicyType'
#       Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an Elastic Load Balancing LoadBalancer
resource
#       And: 'Policies' contains a policy with 'PolicyType' equal to
'SSLNegotiationPolicyType'
#       And: 'Policies' is missing a 'Reference-Security-Policy' with a value of
#            'ELBSecurityPolicy-TLS-1-2-2017-01'
#       Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an Elastic Load Balancing LoadBalancer
resource
#       And: 'Policies' contains a policy with 'PolicyType' equal to
'SSLNegotiationPolicyType'
#       And: 'Policies' contains a 'Reference-Security-Policy' with a value of
#            'ELBSecurityPolicy-TLS-1-2-2017-01'
#       And: A 'HTTPS' or 'SSL' Listener on the LoadBalancer resource does not
reference the secure policy
#       Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Load Balancing LoadBalancer resource
# And: 'Policies' contains a policy with 'PolicyType' equal to 'SSLNegotiationPolicyType'
# And: 'Policies' contains a 'Reference-Security-Policy' with a value of 'ELBSecurityPolicy-TLS-1-2-2017-01'
# And: All 'HTTPS' and 'SSL' Listeners on the LoadBalancer resource reference the secure policy
# Then: PASS

# Constants
#
let ELASTIC_LOAD_BALANCER_TYPE = "AWS::ElasticLoadBalancing::LoadBalancer"
let VALID_REFERENCE_SECURITY_POLICIES = [ "ELBSecurityPolicy-TLS-1-2-2017-01" ]
let INPUT_DOCUMENT = this

# Assignments
#
let classic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_TYPE ]

# Primary Rules
#
rule elb_predefined_security_policy_ssl_check when is_cfn_template(%INPUT_DOCUMENT)
%classic_load_balancers not empty {
    check(%classic_load_balancers.Properties)
    <<
    [CT.ELASTICLOADBALANCING.PR.12]: Require any ELB classic load balancer SSL/HTTPS listener to have a predefined security policy with a strong configuration
    [FIX]: Configure classic load balancer HTTPS/SSL listeners to use the predefined security policy called ELBSecurityPolicy-TLS-1-2-2017-01.
    >>
}

rule elb_predefined_security_policy_ssl_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_TYPE) {
    check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_TYPE.resourceProperties)
[CT.ELASTICLOADBALANCING.PR.12]: Require any ELB classic load balancer SSL/HTTPS listener to have a predefined security policy with a strong configuration

[FIX]: Configure classic load balancer HTTPS/SSL listeners to use the predefined security policy called ELBSecurityPolicy-TLS-1-2-2017-01.

}

# Parameterized Rules

rule check(classic_load_balancer) {
  %classic_load_balancer {
    let elb = this

    # Scenario 2
    Listeners[ Protocol in ["HTTPS", "SSL"] ] { 
      %elb.Policies exists
      %elb.Policies is_list
      %elb.Policies not empty

      let secure_policies = %elb.Policies[
        PolicyType == "SSLNegotiationPolicyType"
        some Attributes[*] { 
          Name == "Reference-Security-Policy"
          Value in %VALID_REFERENCE_SECURITY_POLICIES
        } ]
      ].PolicyName

      # Scenarios 3 and 4
      %secure_policies not empty

      # Scenarios 5 and 6
      PolicyNames exists
      PolicyNames is_list
      PolicyNames not empty
      some PolicyNames.* in %secure_policies
    }
  }
}

# Utility Rules

Proactive controls
You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
   Type: AWS::EC2::VPC
   Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'
SubnetOne:
   Type: AWS::EC2::Subnet
   Properties:
      VpcId:
         Ref: VPC
      CidrBlock: 10.0.0.0/24
      AvailabilityZone:
         Fn::Select:
            - 0
            - Fn::GetAZs: ''
SubnetTwo:
   Type: AWS::EC2::Subnet
   Properties:
      VpcId:
Ref: VPC
CidrBlock: 10.0.1.0/24
AvailabilityZone:
  - Fn::Select:
    - 1
    - Fn::GetAZs: ''
ACMCertificate:
  Type: "AWS::CertificateManager::Certificate"
  Properties:
    DomainName: example.com
    ValidationMethod: DNS
    DomainValidationOptions:
      - DomainName: www.example.com
        HostedZoneId: ZZZHHHHWWWWAAA
ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
      - Ref: SubnetOne
      - Ref: SubnetTwo
    Policies:
      - PolicyName: Example-SSLNegotiation-Policy
        PolicyType: SSLNegotiationPolicyType
        Attributes:
          - Name: Reference-Security-Policy
            Value: ELBSecurityPolicy-TLS-1-2-2017-01
    Listeners:
      - InstancePort: 80
        InstanceProtocol: HTTP
        LoadBalancerPort: 443
        Protocol: HTTPS
        SSLCertificateId:
          - Ref: ACMCertificate
        PolicyNames:
          - Example-SSLNegotiation-Policy

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: 'true'
      EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''

ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internal
    Subnets:
      - Ref: SubnetOne
      - Ref: SubnetTwo
    Policies:
      - PolicyName: Example-SSLNegotiation-Policy
        PolicyType: SSLNegotiationPolicyType
        Attributes:
          - Name: Reference-Security-Policy
            Value: ELBSecurityPolicy-2016-08
    Listeners:
      - InstancePort: 80
        InstanceProtocol: HTTP
        LoadBalancerPort: 443
[CT.ELASTICLOADBALANCING.PR.13] Require any ELB classic load balancer to have cross-zone load balancing activated

This control checks whether cross-zone load balancing is configured for your Classic Load Balancer.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancing::LoadBalancer
- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.13 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.13 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.13 example templates](#)

**Explanation**

A load balancer node distributes traffic across the registered targets in its Availability Zone. When cross-zone load balancing is turned off, each load balancer node distributes traffic only across the registered targets in its own Availability Zone. If the number of registered targets is not same across the Availability Zones, traffic is not distributed evenly, so the instances in one zone may become over-utilized, when compared to the instances in another zone. With cross-zone load balancing activated, each load balancer node for your classic load balancer distributes requests evenly across the registered instances in all enabled Availability Zones.
Remediation for rule failure

Set CrossZone to true on Classic Load Balancers.

The examples that follow show how to implement this remediation.

Classic Load Balancer - Example

Classic Load Balancer configured with cross-zone load balancing active. The example is shown in JSON and in YAML.

JSON example

```json
{
    "ClassicLoadBalancer": {
        "Type": "AWS::ElasticLoadBalancing::LoadBalancer",
        "Properties": {
            "Scheme": "internal",
            "Listeners": [
                {
                    "InstancePort": "80",
                    "InstanceProtocol": "HTTP",
                    "LoadBalancerPort": "443",
                    "Protocol": "HTTPS",
                    "PolicyNames": [
                        "Sample-SSLNegotiation-Policy"
                    ],
                    "SSLCertificateId": {
                        "Ref": "ACMCertificate"
                    }
                }
            ],
            "Policies": [
                {
                    "PolicyName": "Sample-SSLNegotiation-Policy",
                    "PolicyType": "SSLNegotiationPolicyType",
                    "Attributes": [
                        {
                            "Name": "Reference-Security-Policy",
                            "Value": "ELBSecurityPolicy-TLS-1-2-2017-01"
                        }
                    ]
                }
            ]
        }
    }
}
```
YAML example

```yaml
ClasssicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
    Scheme: internal
    Listeners:
      - InstancePort: '80'
        InstanceProtocol: HTTP
        LoadBalancerPort: '443'
        Protocol: HTTPS
    PolicyNames:
      - Sample-SSLNegotiation-Policy
      SSLCertificateId: !Ref 'ACMCertificate'
    Policies:
      - PolicyName: Sample-SSLNegotiation-Policy
        PolicyType: SSLNegotiationPolicyType
        Attributes:
          - Name: Reference-Security-Policy
            Value: ELBSecurityPolicy-TLS-1-2-2017-01
    Subnets:
      - !Ref 'SubnetOne'
      - !Ref 'SubnetTwo'
    CrossZone: true
```
CT.ELASTICLOADBALANCING.PR.13 rule specification

# # # # # # # # # # # # # # # # # #
#  Rule Specification             #
# # # # # # # # # # # # # # # # # #
#
# Rule Identifier:
#   elb_cross_zone_load_balancing_enabled_check
#
# Description:
#   This control checks whether cross-zone load balancing is configured for your
#   Classic Load Balancer.
#
# Reports on:
#   AWS::ElasticLoadBalancing::LoadBalancer
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Elastic Load Balancing
#       LoadBalancer resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Elastic Load Balancing LoadBalancer
#       resource
#     And: 'CrossZone' has not been specified
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Elastic Load Balancing LoadBalancer
#       resource
#     And: 'CrossZone' has been specified and set to bool(false)
#     Then: FAIL

Proactive controls
# Scenario: 4
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an Elastic Load Balancing LoadBalancer
#       resource
#       And: 'CrossZone' has been specified and set to bool(true)
#       Then: PASS
#
# Constants
#
let ELASTIC_LOAD_BALANCER_TYPE = "AWS::ElasticLoadBalancing::LoadBalancer"
let INPUT_DOCUMENT = this
#
# Assignments
#
let classic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_TYPE ]
#
# Primary Rules
#
rule elb_cross_zone_load_balancing_enabled_check when is_cfn_template(%INPUTDOCUMENT) %classic_load_balancers not empty
{
    check(%classic_load_balancers.Properties)
    <<
    [CT.ELASTICLOADBALANCING.PR.13]: Require any ELB classic load balancer to have
cross-zone load balancing activated
    [FIX]: Set 'CrossZone' to 'true' on Classic Load Balancers.
    >>
}
rule elb_cross_zone_load_balancing_enabled_check when is_cfn_hook(%INPUTDOCUMENT, %ELASTIC_LOAD_BALANCER_TYPE) {
    check(%INPUTDOCUMENT.%ELASTIC_LOAD_BALANCER_TYPE.resourceProperties)
    <<
    [CT.ELASTICLOADBALANCING.PR.13]: Require any ELB classic load balancer to have
cross-zone load balancing activated
    [FIX]: Set 'CrossZone' to 'true' on Classic Load Balancers.
    >>
}
#
# Parameterized Rules

```java
# Parameterized Rules
#
rule check(classic_load_balancer) {
    %classic_load_balancer {
        # Scenario 2
        CrossZone exists

        # Scenario 3 and 4
        CrossZone == true
    }
}
#
# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

CT.ELASTICLOADBALANCING.PR.13 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
    Type: AWS::EC2::VPC
    Properties:
        CidrBlock: 10.0.0.0/16
        EnableDnsSupport: 'true'
        EnableDnsHostnames: 'true'
SubnetOne:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.0.0/24
AvailabilityZone:
  Fn::Select:
    - 0
    - Fn::GetAZs: ''
SubnetTwo:
Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.1.0/24
AvailabilityZone:
  Fn::Select:
    - 1
    - Fn::GetAZs: ''
ACMCertificate:
Type: "AWS::CertificateManager::Certificate"
Properties:
  DomainName: example.com
  ValidationMethod: DNS
  DomainValidationOptions:
    - DomainName: www.example.com
      HostedZoneId: ZZZHHHHWWWWAAA
ClassicLoadBalancer:
Type: AWS::ElasticLoadBalancing::LoadBalancer
Properties:
  Scheme: internal
  Listeners:
    - InstancePort: '80'
      InstanceProtocol: HTTP
      LoadBalancerPort: '443'
      Protocol: HTTPS
      PolicyNames:
        - Example-SSLNegotiation-Policy
      SSLCertificateId:
        Ref: ACMCertificate
      Policies:
        - PolicyName: Example-SSLNegotiation-Policy
          PolicyType: SSLNegotiationPolicyType
      Attributes:
- Name: Reference-Security-Policy
  Value: ELBSecurityPolicy-TLS-1-2-2017-01

Subnets:
- Ref: SubnetOne
- Ref: SubnetTwo

CrossZone: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''

ClassicLoadBalancer:
  Type: AWS::ElasticLoadBalancing::LoadBalancer
  Properties:
[CT.ELASTICLOADBALANCING.PR.14] Require a Network Load Balancer to have cross-zone load balancing activated

This control checks whether a Network Load Balancer (NLB) is configured with cross-zone load balancing.

- **Control objective:** Improve resiliency, Improve availability
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancingV2::LoadBalancer
- **AWS CloudFormation guard rule:** [CT.ELASTICLOADBALANCING.PR.14 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.14 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.14 example templates](#)

**Explanation**

The nodes for your load balancer distribute requests from clients to registered targets. When cross-zone load balancing is enabled, each load balancer node distributes traffic across the registered targets in all enabled Availability Zones. When cross-zone load balancing is not enabled, each load balancer node distributes traffic only across the registered targets in its own Availability Zone.
Usage considerations

- This control applies only to a Network Load Balancer (Type of network).
- With a Network Load Balancer, cross-zone load balancing is off by default at the load-balancer level. You can turn it on at any time. For target groups, the default is to use the load balancer setting, but you can override the default by turning cross-zone load balancing on or off explicitly, at the target group level. To ensure that cross-zone load balancing is configured on target groups, use this control in conjunction with CT.ELASTICLOADBALANCING.PR.15.

Remediation for rule failure

Set the load balancer attribute load_balancing.cross_zone.enabled to true.

The examples that follow show how to implement this remediation.

Network Load Balancer - Example

Network Load Balancer configured with cross-zone load balancing enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
    "NetworkLoadBalancer": {
        "Type": "AWS::ElasticLoadBalancingV2::LoadBalancer",
        "Properties": {
            "Scheme": "internal",
            "Type": "network",
            "Subnets": [
                { "Ref": "SubnetOne" },
                { "Ref": "SubnetTwo" }
            ],
            "IpAddressType": "ipv4",
            "LoadBalancerAttributes": [
```
YAML example

NetworkLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Type: network
    Subnets:
    - !Ref 'SubnetOne'
    - !Ref 'SubnetTwo'
    IpAddressType: ipv4
    LoadBalancerAttributes:
    - Key: load_balancing.cross_zone.enabled
      Value: true

CT.ELASTICLOADBALANCING.PR.14 rule specification

# ###########################
## Rule Specification     ##
# ###########################
#
# Rule Identifier:
#   nlb_cross_zone_load_balancing_enabled_check
#
# Description:
#   This control checks whether a Network Load Balancer (NLB) is configured with cross-zone load balancing.
#
# Reports on:
AWS::ElasticLoadBalancingV2::LoadBalancer

Evaluates:
AWS CloudFormation, AWS CloudFormation hook

Rule Parameters:
None

Scenarios:
Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any ELBv2 Load Balancer resources
Then: SKIP

Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ELBv2 Load Balancer resource
And: 'Type' has been provided and is set to a value other than 'network'
Then: SKIP

Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ELBv2 Load Balancer resource
And: 'Type' has been provided and set to 'network'
And: 'LoadBalancerAttributes' has not been provided or has been provided as an empty list
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ELBv2 Load Balancer resource
And: 'Type' has been provided and set to 'network'
And: 'LoadBalancerAttributes' has been provided as a non-empty list
And: 'LoadBalancerAttributes' does not contain an entry with a 'Key' equal to 'load_balancing.cross_zone.enabled'
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ELBv2 Load Balancer resource
And: 'Type' has been provided and set to 'network'
And: 'LoadBalancerAttributes' has been provided as a non-empty list
And: 'LoadBalancerAttributes' contains an entry with a 'Key' equal to 'load_balancing.cross_zone.enabled' and
And: 'Value' equal to a value other than bool(true) or string(true)
Then: FAIL

Scenario: 6

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an ELBv2 Load Balancer resource
And: 'Type' has been provided and set to 'network'
And: 'LoadBalancerAttributes' has been provided as a non-empty list
And: 'LoadBalancerAttributes' contains an entry with a 'Key' equal to 'load_balancing.cross_zone.enabled' and
And: 'Value' equal to bool(true) or string(true)
Then: PASS

Constants

let ELASTIC_LOAD_BALANCER_V2_TYPE = "AWS::ElasticLoadBalancingV2::LoadBalancer"
let INPUT_DOCUMENT = this

Assignments

let elastic_load_balancers = Resources.*[ Type == %ELASTIC_LOAD_BALANCER_V2_TYPE ]

Primary Rules

rule nlb_cross_zone_load_balancing_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%elastic_load_balancers not empty
{
    check(%elastic_load_balancers.Properties)
    <<
    [CT.ELASTICLOADBALANCING.PR.14]: Require a Network Load Balancer to have cross-zone load balancing activated
    [FIX]: Set the load balancer attribute 'load_balancing.cross_zone.enabled' to 'true'.
    >>
}

rule nlb_cross_zone_load_balancing_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTIC_LOAD_BALANCER_V2_TYPE) {
check(%INPUT_DOCUMENT.%ELASTIC_LOAD_BALANCER_V2_TYPE.resourceProperties)
<<
[CT.ELASTICLOADBALANCING.PR.14]: Require a Network Load Balancer to have cross-zone load balancing activated
[FIX]: Set the load balancer attribute 'load_balancing.cross_zone.enabled' to 'true'.
>>
}

# Parameterized Rules
#
rule check(elastic_load_balancer) {
  %elastic_load_balancer[ Type == "network" ] {
    # Scenario 2
    LoadBalancerAttributes exists
    LoadBalancerAttributes is_list
    LoadBalancerAttributes not empty

    # Scenarios 3, 4 and 5
    some LoadBalancerAttributes[*] {
      Key exists
      Value exists

      Key == "load_balancing.cross_zone.enabled"
      Value in [ true, "true" ]
    }
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
Vpc:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: Vpc
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: Vpc
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
NetworkLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
  Properties:
    Scheme: internal
    Type: network
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

Vpc:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: Vpc
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
      - 0
      - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: Vpc
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
      - 1
      - Fn::GetAZs: ''

NetworkLoadBalancer:
  Type: AWS::ElasticLoadBalancingV2::LoadBalancer
Properties:
  Scheme: internal
  Type: network
  Subnets:
    - Ref: SubnetOne
    - Ref: SubnetTwo
  IpAddressType: ipv4

[CT.ELASTICLOADBALANCING.PR.15] Require that an Elastic Load Balancing v2 target group does not explicitly disable cross-zone load balancing

This control checks whether an Elastic Load Balancing v2 target group is configured so that it does not explicitly turn off cross-zone load balancing.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::ElasticLoadBalancingV2::TargetGroup
- **AWS CloudFormation guard rule:** CT.ELASTICLOADBALANCING.PR.15 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.ELASTICLOADBALANCING.PR.15 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.ELASTICLOADBALANCING.PR.15 example templates](#)

**Explanation**

The nodes for your load balancer distribute requests from clients to registered targets. When cross-zone load balancing is enabled, each load balancer node distributes traffic across the registered targets in all enabled Availability Zones. When cross-zone load balancing is not enabled, each load balancer node distributes traffic only across the registered targets in its Availability Zone.

The target group's cross-zone load balancing setting determines the load balancing behavior for the entire target group. For example, if cross-zone load balancing is enabled at the load balancer
level, but not enabled at the target group level, traffic sent to the target group is not routed across Availability Zones.

### Usage considerations

- This control checks only to ensure that cross-zone load balancing has not been explicitly turned off on an ELB target group. To ensure that cross-zone load balancing is enabled, be sure to enable this control in conjunction with related proactive controls that check load balancers directly.
- If you turn on cross-zone load balancing, you can't start a zonal shift. For more information, see [Resources supported for zonal shifts](https://docs.aws.amazon.com/r53recovery/latest/dg/arc-zonal-shift.resource-types.html) in the Amazon Route 53 Application Recovery Controller Developer Guide.

### Remediation for rule failure

Do not set the load balancer attribute `load_balancing.cross_zone.enabled` to adopt the default value of `use_load_balancer_configuration`. Do not explicitly set the attribute to true, nor to the value `use_load_balancer_configuration`.

The examples that follow show how to implement this remediation.

**Elastic Load Balancer target group - Example**

Elastic Load Balancer target group configured to enable cross-zone load balancing. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "TargetGroup": {
      "Type": "AWS::ElasticLoadBalancingV2::TargetGroup",
      "Properties": {
         "Protocol": "HTTP",
         "Port": 80,
         "VpcId": {
            "Ref": "VPC"
         }
      },
      "TargetGroupAttributes": [
```
YAML example

TargetGroup:
  Type: AWS::ElasticLoadBalancingV2::TargetGroup
  Properties:
    Protocol: HTTP
    Port: 80
    VpcId: !Ref 'VPC'
  TargetGroupAttributes:
    - Key: load_balancing.cross_zone.enabled
      Value: true

CT.ELASTICLOADBALANCING.PR.15 rule specification

# ###################################################################
##       Rule Specification       ##
# ###################################################################
#
# Rule Identifier:
#   elbv2_target_group_cross_zone_check
#
# Description:
#   This control checks whether an Elastic Load Balancing v2 target group is configured
#   so that it does not explicitly turn off cross-zone load balancing.
#
# Reports on:
#   AWS::ElasticLoadBalancingV2::TargetGroup
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any Elastic Load Balancing v2 target group resources
# Then: SKIP

# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Load Balancing v2 target group resource
# And: 'TargetGroupAttributes' has been provided as a non-empty list
# And: 'TargetGroupAttributes' contain an entry with a 'Key' equal to 'load_balancing.cross_zone.enabled'
# and 'Value' equal to a value other than bool(true), 'true' or 'use_load_balancer_configuration'
# Then: FAIL

# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Load Balancing v2 target group resource
# And: 'TargetGroupAttributes' has not been provided or has been provided as a list that
# does not contain an entry with a 'Key' equal to 'load_balancing.cross_zone.enabled'
# Then: PASS

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elastic Load Balancing v2 target group resource
# And: 'TargetGroupAttributes' has been provided as a non-empty list
# And: 'TargetGroupAttributes' contains an entry with a 'Key' equal to 'load_balancing.cross_zone.enabled' and
# 'Value' equal to bool(true), string(true) or 'use_load_balancer_configuration'
# Then: PASS
# Constants
let INPUT_DOCUMENT = this
let ELBV2_TARGET_GROUP_TYPE = "AWS::ElasticLoadBalancingV2::TargetGroup"
let ALLOWED CROSS_ZONE_VALUES = ["true", true, "use_load_balancer_configuration"]

# Assignments
let elbv2_target_groups = Resources.*[ Type == %ELBV2_TARGET_GROUP_TYPE ]

# Primary Rules
rule elbv2_target_group_cross_zone_check when is_cfn_template(%INPUT_DOCUMENT) %elbv2_target_groups not empty {
    check(%elbv2_target_groups.Properties)
    <[CT.ELASTICLOADBALANCING.PR.15]: Require that an Elastic Load Balancing v2 target group does not explicitly disable cross-zone load balancing
    [FIX]: Do not set the load balancer attribute
          'load_balancing.cross_zone.enabled' to adopt the default value of
          'use_load_balancer_configuration'. Do not explicitly set the attribute to true, nor to
          the value 'use_load_balancer_configuration'.
    >}

rule elbv2_target_group_cross_zone_check when is_cfn_hook(%INPUT_DOCUMENT, %ELBV2_TARGET_GROUP_TYPE) {
    check(%INPUT/document.%ELBV2_TARGET_GROUP_TYPE.resourceProperties)
    <[CT.ELASTICLOADBALANCING.PR.15]: Require that an Elastic Load Balancing v2 target group does not explicitly disable cross-zone load balancing
    [FIX]: Do not set the load balancer attribute
          'load_balancing.cross_zone.enabled' to adopt the default value of
          'use_load_balancer_configuration'. Do not explicitly set the attribute to true, nor to
          the value 'use_load_balancer_configuration'.
    >}
# Parameterized Rules

rule check(elbv2_target_group) {
    %elbv2_target_group {
        # Scenarios 2 and 3
        TargetGroupAttributes not exists or
        check_target_group_with_attributes(this)
    }
}

rule check_target_group_with_attributes(target_group) {
    %target_group {
        TargetGroupAttributes exists
        TargetGroupAttributes is_list
        TargetGroupAttributes[
            Key exists
            Key == "load_balancing.cross_zone.enabled"
        ] {
            # Scenario 4
            Value exists
            Value in %ALLOWED_CROSS_ZONE_VALUES
        }
    }
}

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.ELASTICLOADBALANCING.PR.15 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: true
      EnableDnsHostnames: true
  TargetGroup:
    Type: AWS::ElasticLoadBalancingV2::TargetGroup
    Properties:
      Protocol: HTTP
      Port: 80
      VpcId:
        Ref: VPC
    TargetGroupAttributes:
      - Key: load_balancing.cross_zone.enabled
        Value: true
```

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

```yaml
Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsSupport: true
      EnableDnsHostnames: true
  TargetGroup:
    Type: AWS::ElasticLoadBalancingV2::TargetGroup
    Properties:
      Protocol: HTTP
```
Amazon Elastic Map Reduce (Amazon EMR) controls

Topics

- [CT.EMR.PR.1] Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data at rest in Amazon S3
- [CT.EMR.PR.2] Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data at rest in Amazon S3 with an AWS KMS key
- [CT.EMR.PR.3] Require that an Amazon Elastic MapReduce (EMR) security configuration is configured with EBS volume local disk encryption using an AWS KMS key
- [CT.EMR.PR.4] Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data in transit

[CT.EMR.PR.1] Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data at rest in Amazon S3

This control checks whether an Amazon EMR security configuration is configured to encrypt EMR File System (EMRFS) objects at rest in Amazon S3.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EMR::SecurityConfiguration
- **AWS CloudFormation guard rule:** CT.EMR.PR.1 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.EMR.PR.1 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EMR.PR.1 example templates](#)

**Explanation**

Amazon S3 encryption works with EMR File System (EMRFS) objects that are read from and written to Amazon S3. When you enable encryption at rest, you specify Amazon S3 server-side encryption (SSE) or client-side encryption (CSE) as the default encryption mode. Optionally, you can specify different encryption methods for individual buckets by using per bucket encryption overrides.

**Remediation for rule failure**

In the `EncryptionConfiguration` parameter, set the value of `EnableAtRestEncryption` to true, and provide an `AtRestEncryptionConfiguration` configuration.

The examples that follow show how to implement this remediation.

**Amazon EMR security configuration - Example**

An Amazon EMR security configuration configured to encrypt EMR File System (EMRFS) objects at rest in Amazon S3. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "SecurityConfiguration": {
    "Type": "AWS::EMR::SecurityConfiguration",
    "Properties": {
      "SecurityConfiguration": {
        "EncryptionConfiguration": {
          "EnableInTransitEncryption": false,
          "EnableAtRestEncryption": true,
          "AtRestEncryptionConfiguration": {
            "S3EncryptionConfiguration": {
              "EncryptionMode": "SSE-S3"
            }
          }
        }
      }
    }
  }
}
```
YAML example

SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
  Properties:
    SecurityConfiguration:
      EncryptionConfiguration:
        EnableInTransitEncryption: false
        EnableAtRestEncryption: true
        AtRestEncryptionConfiguration:
          S3EncryptionConfiguration:
            EncryptionMode: SSE-S3

CT.EMR.PR.1 rule specification

# ###########################################################################
##       Rule Specification        ##
# ###########################################################################
#
# Rule Identifier:
#   emr_sec_config_encryption_at_rest_s3_check
#
# Description:
#   This control checks whether an Amazon EMR security configuration is configured to
#   encrypt EMR File System (EMRFS) objects at rest in Amazon S3.
#
# Reports on:
#   AWS::EMR::SecurityConfiguration
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1'
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any EMR security configuration resources
# Then: SKIP

# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EMR security configuration resource
# And: 'EncryptionConfiguration' in 'SecurityConfiguration' has not been provided
# Then: FAIL

# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EMR security configuration resource
# And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
# And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has not been provided
# or has been provided and set to a value other than bool(true)
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EMR security configuration resource
# And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
# And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has been provided and set to bool(true)
# And: 'AtRestEncryptionConfiguration' has not been provided
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EMR security configuration resource
# And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
# And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has been provided and set to bool(true)
# And: 'AtRestEncryptionConfiguration' has been provided as a struct
# And: 'EncryptionMode' in 'AtRestEncryptionConfiguration.S3EncryptionConfiguration'
# has not been provided or has been provided as an empty string
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EMR security configuration resource
# And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
# And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has been provided and set to bool(true)
# And: 'AtRestEncryptionConfiguration' has been provided as a struct
# And: 'EncryptionMode' in 'AtRestEncryptionConfiguration.S3EncryptionConfiguration'
# has been provided as a non-empty string
# Then: PASS

# Constants
#
let EMR_SECURITY_CONFIGURATION_TYPE = "AWS::EMR::SecurityConfiguration"
let INPUT_DOCUMENT = this

# Assignments
#
let emr_security_configurations = Resources.*[ Type == %EMR_SECURITY_CONFIGURATION_TYPE ]

# Primary Rules
#
rule emr_sec_config_encryption_at_rest_s3_check when is_cfn_template(%INPUT_DOCUMENT)
%emr_security_configurations not empty { check(%emr_security_configurations.Properties) <<
  [CT.EMR.PR.1]: Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data at rest in Amazon S3
  [FIX]: In the 'EncryptionConfiguration' parameter, set the value of 'EnableAtRestEncryption' to true, and provide an 'AtRestEncryptionConfiguration' configuration.
  >> }
rule emr_sec_config_encryption_at_rest_s3_check when is_cfn_hook(%INPUT_DOCUMENT, %EMR_SECURITY_CONFIGURATION_TYPE) {
    check(%INPUT_DOCUMENT.%EMR_SECURITY_CONFIGURATION_TYPE.resourceProperties) <<
        [CT.EMR.PR.1]: Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data at rest in Amazon S3
        [FIX]: In the 'EncryptionConfiguration' parameter, set the value of 'EnableAtRestEncryption' to true, and provide an 'AtRestEncryptionConfiguration' configuration.
    >>
}

# Parameterized Rules

# rule check(emr_security_configuration) {
    %emr_security_configuration {
        SecurityConfiguration exists
        SecurityConfiguration is_struct

        SecurityConfiguration {
            # Scenario 2
            EncryptionConfiguration exists
            EncryptionConfiguration is_struct

            EncryptionConfiguration {
                # Scenario 3
                EnableAtRestEncryption exists
                EnableAtRestEncryption == true

                # Scenario 4
                AtRestEncryptionConfiguration exists
                AtRestEncryptionConfiguration is_struct

                # Scenarios 5 and 6
                AtRestEncryptionConfiguration {
                    S3EncryptionConfiguration exists
                    S3EncryptionConfiguration is_struct

                    S3EncryptionConfiguration {
                        EncryptionMode exists
                        check_is_string_and_not_empty(EncryptionMode)
                    }
                }
            }
        }
    }
}
CT.EMR.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
Properties:
  SecurityConfiguration:
    EncryptionConfiguration:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
Properties:
  SecurityConfiguration:
    EncryptionConfiguration:
      EnableAtRestEncryption: false
      EnableIn TransitEncryption: false

[CT.EMR.PR.2] Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data at rest in Amazon S3 with an AWS KMS key

This control checks whether an Amazon EMR security configuration is configured to encrypt EMR File System (EMRFS) objects at rest in Amazon S3 with an AWS KMS key.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EMR::SecurityConfiguration
- **AWS CloudFormation guard rule:** CT.EMR.PR.2 rule specification

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.EMR.PR.2 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see:
  CT.EMR.PR.2 example templates

Explanation

Amazon S3 encryption works with EMR File System (EMRFS) objects that are read from and written to Amazon S3. When you enable encryption at rest, you specify Amazon S3 server-side encryption (SSE) or client-side encryption (CSE) as the default encryption mode. Optionally, you can specify different encryption methods for individual buckets using per bucket encryption overrides.

Remediation for rule failure

In the EncryptionConfiguration parameter, set EnableAtRestEncryption to true, and provide an AtRestEncryptionConfiguration configuration, with EncryptionMode set to SSE-KMS or CSE-KMS.

The examples that follow show how to implement this remediation.

Amazon EMR security configuration - Example

An Amazon EMR security configuration configured to encrypt EMR File System (EMRFS) objects at rest in Amazon S3 with AWS KMS. The example is shown in JSON and in YAML.

JSON example

```json
{
   "SecurityConfiguration": {
      "Type": "AWS::EMR::SecurityConfiguration",
      "Properties": {
         "SecurityConfiguration": {
            "EncryptionConfiguration": {
               "EnableInTransitEncryption": false,
               "EnableAtRestEncryption": true,
               "AtRestEncryptionConfiguration": {
                  "S3EncryptionConfiguration": {
                     "EncryptionMode": "SSE-KMS",
                     "AwsKmsKey": {
                        "Fn::GetAtt": [
                           "KmsKey",
                           "Arn"
                        ]
```
YAML example

SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
  Properties:
    SecurityConfiguration:
      EncryptionConfiguration:
        EnableInTransitEncryption: false
        EnableAtRestEncryption: true
        AtRestEncryptionConfiguration:
          S3EncryptionConfiguration:
            EncryptionMode: SSE-KMS
            AwsKmsKey: !GetAtt 'KmsKey.Arn'

CT.EMR.PR.2 rule specification

# ######################################################################
# # Rule Specification     #
# ######################################################################
#
# Rule Identifier:
#  emr_sec_config_encryption_at_rest_s3_kms_check
#
# Description:
#  This control checks whether an Amazon EMR security configuration is configured to
#  encrypt EMR File System (EMRFS) objects at rest in Amazon S3 with an AWS KMS key.
#
# Reports on:
#  AWS::EMR::SecurityConfiguration
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any EMR security configuration resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an EMR security configuration resource
#     And: 'EncryptionConfiguration' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an EMR security configuration resource
#     And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
#     And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has not been provided
#      or has been provided and set to a value other than bool(true)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an EMR security configuration resource
#     And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
#     And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has been provided and
#      set to bool(true)
#     And: 'AtRestEncryptionConfiguration' has not been provided
#     Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an EMR security configuration resource
And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has been provided and
    set to bool(true)
And: 'AtRestEncryptionConfiguration' has been provided as a struct
And: 'EncryptionMode' in 'AtRestEncryptionConfiguration.S3EncryptionConfiguration'
    has not been provided or has been provided and set to a value other than a KMS-based encryption mode ('SSE-KMS', 'CSE-KMS')
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an EMR security configuration resource
And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has been provided and
    set to bool(true)
And: 'AtRestEncryptionConfiguration' has been provided as a struct
And: 'EncryptionMode' in 'AtRestEncryptionConfiguration.S3EncryptionConfiguration'
    has been provided and set to a KMS-based encryption mode ('SSE-KMS', 'CSE-KMS')
And: 'Overrides' in 'AtRestEncryptionConfiguration.S3EncryptionConfiguration' has been provided as a non-empty list where one or more entries does not contain 'EncryptionMode', or contains 'EncryptionMode' set to a value other than a KMS-based encryption mode ('SSE-KMS', 'CSE-KMS')
Then: FAIL

Scenario: 7
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an EMR security configuration resource
And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has been provided and
    set to bool(true)
And: 'AtRestEncryptionConfiguration' has been provided as a struct
And: 'EncryptionMode' in 'AtRestEncryptionConfiguration.S3EncryptionConfiguration' has been provided and set to a KMS-based encryption mode ('SSE-KMS', 'CSE-KMS')

And: 'Overrides' in 'AtRestEncryptionConfiguration.S3EncryptionConfiguration' has not been provided, or has been provided as an empty list, or list where every entry contains 'EncryptionMode' set to a KMS-based encryption mode ('SSE-KMS', 'CSE-KMS')

Then: PASS

# Constants

let EMR_SECURITY_CONFIGURATION_TYPE = "AWS::EMR::SecurityConfiguration"
let S3_KMS_ENCRYPTION_MODES = [ "SSE-KMS", "CSE-KMS" ]
let INPUT_DOCUMENT = this

# Assignments

let emr_security_configurations = Resources.*[ Type == %EMR_SECURITY_CONFIGURATION_TYPE ]

# Primary Rules

rule emr_sec_config_encryption_at_rest_s3_kms_check when is_cfn_template(%INPUT_DOCUMENT)
%emr_security_configurations not empty {
  check(%emr_security_configurations.Properties)
  <<
  [CT.EMR.PR.2]: Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data at rest in Amazon S3 with an AWS KMS key
  [FIX]: In the 'EncryptionConfiguration' parameter, set 'EnableAtRestEncryption' to true, and provide an 'AtRestEncryptionConfiguration' configuration, with 'EncryptionMode' set to 'SSE-KMS' or 'CSE-KMS'.
  >>
}

rule emr_sec_config_encryption_at_rest_s3_kms_check when is_cfn_hook(%INPUT_DOCUMENT, %EMR_SECURITY_CONFIGURATION_TYPE) {

check(%INPUT_DOCUMENT.%EMR_SECURITY_CONFIGURATION_TYPE.resourceProperties)
  
  [CT.EMR.PR.2]: Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data at rest in Amazon S3 with an AWS KMS key
  
  [FIX]: In the 'EncryptionConfiguration' parameter, set 'EnableAtRestEncryption' to true, and provide an 'AtRestEncryptionConfiguration' configuration, with 'EncryptionMode' set to 'SSE-KMS' or 'CSE-KMS'.

# Parameterized Rules

# Rule check(emr_security_configuration)
rule check(emr_security_configuration) {
  %emr_security_configuration {
    SecurityConfiguration exists
    SecurityConfiguration is_struct

    SecurityConfiguration {
      # Scenario 2
      EncryptionConfiguration exists
      EncryptionConfiguration is_struct

      EncryptionConfiguration {
        # Scenario 3
        EnableAtRestEncryption exists
        EnableAtRestEncryption == true

        # Scenario 4
        AtRestEncryptionConfiguration exists
        AtRestEncryptionConfiguration is_struct

        # Scenarios 5, 6 and 7
        AtRestEncryptionConfiguration {
          S3EncryptionConfiguration exists
          S3EncryptionConfiguration is_struct

          let s3_encryption_configuration = S3EncryptionConfiguration

          %s3_encryption_configuration {
            check_kms_key_configuration(this)
          }

          %s3_encryption_configuration [}
CT.EMR.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
Resources:
KmsKey:
  Type: AWS::KMS::Key
Properties:
  KeyPolicy:
    Version: 2012-10-17
    Id: example-key-policy
    Statement:
      - Sid: Enable IAM User Permissions
        Effect: Allow
        Principal:
          AWS:
            Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
        Action: kms:*
        Resource: "*"
SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
Properties:
  SecurityConfiguration:
    EncryptionConfiguration:
      EnableInTransitEncryption: false
      EnableAtRestEncryption: true
      AtRestEncryptionConfiguration:
        S3EncryptionConfiguration:
          EncryptionMode: SSE-KMS
          AwsKmsKey:
            Fn::GetAtt:
              - KmsKey
              - Arn

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
Properties:
  SecurityConfiguration:
    EncryptionConfiguration:
[CT.EMR.PR.3] Require that an Amazon Elastic MapReduce (EMR) security configuration is configured with EBS volume local disk encryption using an AWS KMS key

This control checks whether Amazon EMR security configurations are configured with local disk encryption enabled, using EBS volume encryption and AWS KMS.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EMR::SecurityConfiguration
- **AWS CloudFormation guard rule:** [CT.EMR.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EMR.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EMR.PR.3 example templates](#)

**Explanation**

For data at rest, EMR provides the option to encrypt local disk storage. The local storage consists of EC2 instance store volumes and the attached Amazon Elastic Block Store (EBS) storage, which are provisioned with your cluster. The EBS encryption option encrypts the EBS root device volume and its attached storage volumes. The EBS encryption option is available only when you specify AWS Key Management Service as your key provider. AWS Control Tower recommends using EBS encryption.
### Usage considerations

- If you create a cluster in a Region where Amazon EC2 encryption of EBS volumes is enabled by default for your account, an EBS volume is encrypted even when local disk encryption is not enabled.

- With local disk encryption enabled in a security configuration, the Amazon EMR settings take precedence over the Amazon EC2 encryption-by-default settings for cluster EC2 instances.

### Remediation for rule failure

In the EncryptionConfiguration parameter, set the value of EnableAtRestEncryption to true, and provide an AtRestEncryptionConfiguration configuration, containing an LocalDiskEncryptionConfiguration configuration that sets EnableEbsEncryption to true.

The examples that follow show how to implement this remediation.

**Amazon EMR security configuration - Example**

An Amazon EMR security configuration configured with EBS encryption using AWS KMS. The example is shown in JSON and in YAML.

#### JSON example

```json
{
  "SecurityConfiguration": {
    "Type": "AWS::EMR::SecurityConfiguration",
    "Properties": {
      "SecurityConfiguration": {
        "EncryptionConfiguration": {
          "EnableInTransitEncryption": false,
          "EnableAtRestEncryption": true,
          "AtRestEncryptionConfiguration": {
            "LocalDiskEncryptionConfiguration": {
              "EnableEbsEncryption": true,
              "EncryptionKeyProviderType": "AwsKms",
              "AwsKmsKey": "arn:aws:kms:us-west-2:123456789012:key/1234abcd-12ab-34cd-56ef-1234567890ab"
            }
          }
        }
      }
    }
  }
}```
YAML example

```yaml
SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
  Properties:
    SecurityConfiguration:
      EncryptionConfiguration:
        EnableInTransitEncryption: false
        EnableAtRestEncryption: true
      AtRestEncryptionConfiguration:
        LocalDiskEncryptionConfiguration:
          EnableEbsEncryption: true
          EncryptionKeyProviderType: AwsKms
          AwsKmsKey: arn:aws:kms:us-west-2:123456789012:key/1234abcd-12ab-34cd-56ef-1234567890ab

CT.EMR.PR.3 rule specification

# ###################################
##       Rule Specification       ##
####################################
#
# Rule Identifier:
#   emr_sec_config_ebs_encryption_check
#
# Description:
#   This control checks whether Amazon EMR security configurations are configured with
#   local disk encryption enabled, using EBS volume encryption and AWS KMS.
#
# Reports on:
#   AWS::EMR::SecurityConfiguration
```
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any EMR security configuration
#      resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EMR security configuration resource
#     And: 'EncryptionConfiguration' in 'SecurityConfiguration' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EMR security configuration resource
#     And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as
#          a struct
#     And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has not been provided
#          or has been provided and set to a value other than bool(true)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EMR security configuration resource
#     And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as
#          a struct
#     And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has been provided
#          and
#          set to bool(true)
#     And: 'AtRestEncryptionConfiguration' has not been provided
#     Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an EMR security configuration resource
And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has been provided and
    set to bool(true)
And: 'AtRestEncryptionConfiguration' has been provided as a struct
And: 'EnableEbsEncryption' in 'AtRestEncryptionConfiguration.LocalDiskEncryptionConfiguration'
    has not been provided or has been provided and set to a value other than bool(true)
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an EMR security configuration resource
And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
And: 'EnableAtRestEncryption' in 'EncryptionConfiguration' has been provided and
    set to bool(true)
And: 'AtRestEncryptionConfiguration' has been provided as a struct
And: 'EnableEbsEncryption' in 'AtRestEncryptionConfiguration.LocalDiskEncryptionConfiguration'
    has been provided and set to bool(true)
Then: PASS

# Constants
let EMR_SECURITY_CONFIGURATION_TYPE = "AWS::EMR::SecurityConfiguration"
let INPUT_DOCUMENT = this

# Assignments
let emr_security_configurations = Resources.*[ Type == %EMR_SECURITY_CONFIGURATION_TYPE ]

# Primary Rules
rule emr_sec_config_ebs_encryption_check when is_cfn_template(%INPUT_DOCUMENT)
    %emr_security_configurations not empty {
check(%emr_security_configurations.Properties)
<<

[CT.EMR.PR.3]: Require that an Amazon Elastic MapReduce (EMR) security configuration is configured with EBS volume local disk encryption using an AWS KMS key

[FIX]: In the 'EncryptionConfiguration' parameter, set the value of 'EnableAtRestEncryption' to true, and provide an 'AtRestEncryptionConfiguration' configuration, containing an 'LocalDiskEncryptionConfiguration' configuration that sets 'EnableEbsEncryption' to true.

>>

rule emr_sec_config_ebs_encryption_check when is_cfn_hook(%INPUT_DOCUMENT, %EMR_SECURITY_CONFIGURATION_TYPE) {
    check(%INPUT_DOCUMENT.%EMR_SECURITY_CONFIGURATION_TYPE.resourceProperties)
    <<

    [CT.EMR.PR.3]: Require that an Amazon Elastic MapReduce (EMR) security configuration is configured with EBS volume local disk encryption using an AWS KMS key

    [FIX]: In the 'EncryptionConfiguration' parameter, set the value of 'EnableAtRestEncryption' to true, and provide an 'AtRestEncryptionConfiguration' configuration, containing an 'LocalDiskEncryptionConfiguration' configuration that sets 'EnableEbsEncryption' to true.

    >>
}

# Parameterized Rules
#

rule check(emr_security_configuration) {
    %emr_security_configuration {
        SecurityConfiguration exists
        SecurityConfiguration is_struct

        SecurityConfiguration {
            # Scenario 2
            EncryptionConfiguration exists
            EncryptionConfiguration is_struct

            EncryptionConfiguration {
                # Scenario 3
                EnableAtRestEncryption exists
                EnableAtRestEncryption == true

                # Scenario 4
                AtRestEncryptionConfiguration exists

            }
        }
    }
}
AtRestEncryptionConfiguration is_struct

# Scenarios 5 and 6
AtRestEncryptionConfiguration {
    LocalDiskEncryptionConfiguration exists
    LocalDiskEncryptionConfiguration is_struct

    LocalDiskEncryptionConfiguration {
        EnableEbsEncryption exists
        EnableEbsEncryption == true
    }
}
}
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.EMR.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
    KmsKey:
Type: AWS::KMS::Key
Properties:
  KeyPolicy:
    Version: 2012-10-17
    Id: example-key-policy
    Statement:
      - Sid: Enable IAM User Permissions
        Effect: Allow
        Principal:
          AWS:
            Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
        Action: kms:*
        Resource: "*"

SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
Properties:
  SecurityConfiguration:
    EncryptionConfiguration:
      EnableIn TransitEncryption: false
      EnableAtRestEncryption: true
    AtRestEncryptionConfiguration:
      LocalDiskEncryptionConfiguration:
        EnableEbsEncryption: true
        EncryptionKeyIdProviderType: AwsKms
        AwsKmsKey:
          Fn::GetAtt:
          - KmsKey
          - Arn

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  SecurityConfiguration:
    Type: AWS::EMR::SecurityConfiguration
Properties:
  SecurityConfiguration:
    EncryptionConfiguration:
      EnableInTransitEncryption: false
      EnableAtRestEncryption: false
[CT.EMR.PR.4] Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data in transit

This control checks whether an Amazon EMR security configuration is configured to require encryption in transit.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::EMR::SecurityConfiguration
- **AWS CloudFormation guard rule:** [CT.EMR.PR.4 rule specification](#)

### Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.EMR.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.EMR.PR.4 example templates](#)

### Explanation

For data in transit, EMR security configurations provide you two options. You can create PEM certificates, zip them in a file, and reference them from Amazon S3, or you can implement a certificate custom provider in Java and specify the S3 path to the JAR. In either case, EMR downloads artifacts to each node in the cluster automatically, and later uses them to implement open-source, in-transit encryption features. For more information on how these certificates are used with different big data technologies, see Amazon EMR documentation.

### Usage considerations

- Several encryption mechanisms are associated with in-transit encryption. These mechanisms are open-source features, they are application-specific, and they may vary
Remediation for rule failure

In the EncryptionConfiguration parameter, set the EnableInTransitEncryption parameter to true, and provide an InTransitEncryptionConfiguration configuration.

The examples that follow show how to implement this remediation.

**Amazon EMR security configuration - Example**

An Amazon EMR security configuration configured to require encryption of data in transit. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "SecurityConfiguration": {
    "Type": "AWS::EMR::SecurityConfiguration",
    "Properties": {
      "SecurityConfiguration": {
        "EncryptionConfiguration": {
          "EnableAtRestEncryption": false,
          "EnableInTransitEncryption": true,
          "InTransitEncryptionConfiguration": {
            "TLSCertificateConfiguration": {
              "CertificateProviderType": "PEM",
              "S3Object": "s3://MyConfigStore/artifacts/MyCerts.zip"
            }
          }
        }
      }
    }
  }
}
```

**YAML example**

```yaml
Proactive controls
```

---

by Amazon EMR release. For more information, see Encryption in transit in the Amazon EMR Management Guide.
SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
Properties:
  SecurityConfiguration:
    EncryptionConfiguration:
      EnableAtRestEncryption: false
      EnableInTransitEncryption: true
      InTransitEncryptionConfiguration:
        TLSCertificateConfiguration:
          CertificateProviderType: PEM
          S3Object: s3://MyConfigStore/artifacts/MyCerts.zip

CT.EMR.PR.4 rule specification

# #################################################################
##       Rule Specification       ##
#################################################################
#
# Rule Identifier:
#   emr_sec_config_encryption_in_transit_check
#
# Description:
#   This control checks whether an Amazon EMR security configuration is configured to
#   require encryption in transit.
#
# Reports on:
#   AWS::EMR::SecurityConfiguration
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#            document
#          And: The input document does not contain any EMR security configuration
#             resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EMR security configuration resource
#     And: 'EncryptionConfiguration' in 'SecurityConfiguration' has not been provided
#     Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EMR security configuration resource
#     And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as
#         a struct
#     And: 'EnableInTransitEncryption' in 'EncryptionConfiguration' has not been
#         provided
#         or has been provided and set to a value other than bool(true)
#     Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EMR security configuration resource
#     And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as
#         a struct
#     And: 'EnableInTransitEncryption' in 'EncryptionConfiguration' has been provided
#         and
#         set to bool(true)
#     And: 'InTransitEncryptionConfiguration' has not been provided
#     Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an EMR security configuration resource
#     And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as
#         a struct
#     And: 'EnableInTransitEncryption' in 'EncryptionConfiguration' has been provided
#         and
#         set to bool(true)
#     And: 'InTransitEncryptionConfiguration' has been provided as a struct
#     And: 'CertificateProviderType' in
#         'InTransitEncryptionConfiguration.TLSCertificateConfiguration'
#         has not been provided or has been provided and set to an empty string
#     Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an EMR security configuration resource
# And: 'EncryptionConfiguration' in 'SecurityConfiguration' has been provided as a struct
# And: 'EnableInTransitEncryption' in 'EncryptionConfiguration' has been provided and
#      set to bool(true)
# And: 'InTransitEncryptionConfiguration' has been provided as a struct
# And: 'CertificateProviderType' in 'InTransitEncryptionConfiguration.TLSCertificateConfiguration'
#      has been provided and set to a non-empty string
# Then: PASS

# Constants

let EMR_SECURITY_CONFIGURATION_TYPE = "AWS::EMR::SecurityConfiguration"
let INPUT_DOCUMENT = this

# Assignments

let emr_security_configurations = Resources.*[ Type ==
  %EMR_SECURITY_CONFIGURATION_TYPE ]

# Primary Rules

rule emr_sec_config_encryption_in_transit_check when is_cfn_template(%INPUT_DOCUMENT)
emr_security_configurations not empty {
  check(%emr_security_configurations.Properties)
  <<
  [CT.EMR.PR.4]: Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data in transit
  [FIX]: In the 'EncryptionConfiguration' parameter, set the 'EnableInTransitEncryption' parameter to true, and provide an 'InTransitEncryptionConfiguration' configuration.
  >>
}

rule emr_sec_config_encryption_in_transit_check when is_cfn_hook(%INPUT_DOCUMENT,
  %EMR_SECURITY_CONFIGURATION_TYPE) {

Proactive controls

1456
check(%INPUT_DOCUMENT.%EMR_SECURITY_CONFIGURATION_TYPE.resourceProperties)
<<
[CT.EMR.PR.4]: Require that an Amazon Elastic MapReduce (EMR) security configuration is configured to encrypt data in transit
[FIX]: In the 'EncryptionConfiguration' parameter, set the 'EnableInTransitEncryption' parameter to true, and provide an 'InTransitEncryptionConfiguration' configuration.
>>

# Parameterized Rules
#
rule check(emr_security_configuration) {
  %emr_security_configuration {
    SecurityConfiguration exists
    SecurityConfiguration is_struct

    SecurityConfiguration {
      # Scenario 2
      EncryptionConfiguration exists
      EncryptionConfiguration is_struct

      EncryptionConfiguration {
        # Scenario 3
        EnableInTransitEncryption exists
        EnableInTransitEncryption == true

        # Scenario 4
        InTransitEncryptionConfiguration exists
        InTransitEncryptionConfiguration is_struct

        # Scenarios 5 and 6
        InTransitEncryptionConfiguration {
          TLSCertificateConfiguration exists
          TLSCertificateConfiguration is_struct

          TLSCertificateConfiguration {
            CertificateProviderType exists
            check_is_string_and_not_empty(CertificateProviderType)
          }
        }
      }
    }
  }
}
CT.EMR.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
  Properties:
    SecurityConfiguration:
      EncryptionConfiguration:
        EnableAtRestEncryption: false
        EnableInTransitEncryption: true
        InTransitEncryptionConfiguration:
          TLSCertificateConfiguration:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
SecurityConfiguration:
  Type: AWS::EMR::SecurityConfiguration
Properties:
  SecurityConfiguration:
    EncryptionConfiguration:
      EnableInTransitEncryption: false
      EnableAtRestEncryption: false

AWS Glue controls

Topics
• [CT.GLUE.PR.1] Require an AWS Glue job to have an associated security configuration

[CT.GLUE.PR.1] Require an AWS Glue job to have an associated security configuration

This control checks whether an AWS Glue job has an associated security configuration.

• Control objective: Encrypt data at rest
• Implementation: AWS CloudFormation guard rule
• Control behavior: Proactive
• Resource types: AWS::Glue::Job
• AWS CloudFormation guard rule: CT.GLUE.PR.1 rule specification

Details and examples
• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.GLUE.PR.1 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.GLUE.PR.1 example templates](#)

**Explanation**

In AWS Glue, a security configuration contains the properties that are needed when you write encrypted data. Security configurations for an AWS Glue job must be configured to specify how the data is encrypted at the Amazon S3 target. Encryption helps protect the data from unauthorized access and exposure.

**Remediation for rule failure**

Set the `SecurityConfiguration` parameter to the name of an AWS Glue security configuration.

The examples that follow show how to implement this remediation.

**AWS Glue job - Example**

An AWS Glue job configured with an associated security configuration. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "GlueJob": {
    "Type": "AWS::Glue::Job",
    "Properties": {
      "Command": {
        "Name": "glueetl",
        "ScriptLocation": "s3://example-glue-script-bucket/scripts"
      },
      "Name": "sample-glue-job",
      "Role": {
        "Ref": "IAMRole"
      },
      "GlueVersion": "2.0",
      "SecurityConfiguration": {
        "Ref": "GlueSecurityConfig"
      }
    }
  }
}
```
**YAML example**

```yaml
GlueJob:
  Type: AWS::Glue::Job
  Properties:
    Command:
      Name: glueetl
      ScriptLocation: s3://example-glue-script-bucket/scripts
      Name: sample-glue-job
    Role: !Ref 'IAMRole'
    GlueVersion: '2.0'
    SecurityConfiguration: !Ref 'GlueSecurityConfig'
```

**CT.GLUE.PR.1 rule specification**

```plaintext
# ######################################################################
##       Rule Specification       ##
######################################################################
#
# Rule Identifier:
#   glue_job_security_config_check
#
# Description:
#   This control checks whether an AWS Glue job has an associated security
#   configuration.
#
# Reports on:
#   AWS::Glue::Job
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any AWS Glue job resources
# Then: SKIP

# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an AWS Glue job resource
# And: 'SecurityConfiguration' has not been provided
# Then: FAIL

# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an AWS Glue job resource
# And: 'SecurityConfiguration 'has been provided as an empty string or invalid local reference
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation Hook Document
# And: The input document contains an AWS Glue job resource
# And: 'SecurityConfiguration' has been provided as a non-empty string or valid local reference to an AWS Glue security configuration resource
# Then: PASS

# Constants
#
let INPUT_DOCUMENT = this
let GLUE_JOB_TYPE = "AWS::Glue::Job"

# Assignments
#
let glue_jobs = Resources.*[ Type == %GLUE_JOB_TYPE ]

# Primary Rules
#
rule glue_job_security_config_check when is_cfn_template(%INPUT_DOCUMENT) %glue_jobs not empty {
    check(%glue_jobs.Properties) <<


[CT.GLUE.PR.1]: Require an AWS Glue job to have an associated security configuration

[_FIX]: Set the 'SecurityConfiguration' parameter to the name of an AWS Glue security configuration.

} rule glue_job_security_config_check when is_cfn_hook(%INPUT_DOCUMENT, %GLUE_JOB_TYPE) { check(%INPUT_DOCUMENT.%GLUE_JOB_TYPE.resourceProperties)

} rule check(glue_job) {
  %glue_job{
    # Scenario 2
    SecurityConfiguration exists
    # Scenario 3 and 4
    check_is_string_and_not_empty(SecurityConfiguration) or
    check_local_references(%INPUT_DOCUMENT, SecurityConfiguration, "AWS::Glue::SecurityConfiguration")
  }
}

# Utility Rules
rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /\A\s*\z/
  }
}

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
  }
}
Resources exists
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_local_references(doc, reference_properties, referenced_RESOURCE_TYPE) {
  %reference_properties {
    'Fn::GetAtt' {
      query_for_resource(%doc, this[0], %referenced_RESOURCE_TYPE)
      <<Local Stack reference was invalid>>
    } or Ref {
      query_for_resource(%doc, this, %referenced_RESOURCE_TYPE)
      <<Local Stack reference was invalid>>
    }
  }
}

rule query_for_resource(doc, resource_key, referenced_RESOURCE_TYPE) {
  let referenced_resource = %doc.Resources[ keys == %resource_key ]
  %referenced_resource not empty
  %referenced_resource {
    Type == %referenced_RESOURCE_TYPE
  }
}

CT.GLUE.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: "2012-10-17"
Statement:
- Effect: "Allow"
  Principal:
    Service:
      - "glue.amazonaws.com"
  Action:
    - "sts:AssumeRole"
  Path: "/
Key:
  Type: AWS::KMS::Key
Properties:
  KeyPolicy:
    Version: 2012-10-17
    Id: example-policy
    Statement:
      - Sid: Enable IAM User Permissions
        Effect: Allow
        Principal:
          AWS:
            Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
          Action: kms:*
          Resource: '*'
         KeySpec: SYMMETRIC_DEFAULT
          EnableKeyRotation: true
GlueSecurityConfig:
  Type: AWS::Glue::SecurityConfiguration
Properties:
  Name:
    Fn::Sub: ${AWS::StackName}-example
  EncryptionConfiguration:
    S3Encryptions:
      - KmsKeyArn:
          Fn::GetAtt: [Key, Arn]
        S3EncryptionMode: SSE-KMS
GlueJob:
  Type: AWS::Glue::Job
Properties:
  Command:
    Name: glueetl
    ScriptLocation: "s3://example-glue-script-bucket/scripts"
  Name:
    Fn::Sub: ${AWS::StackName}-example
  Role:
    Ref: IAMRole
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
  Properties:
  AssumeRolePolicyDocument:
    Version: "2012-10-17"
    Statement:
      - Effect: "Allow"
        Principal:
          Service:
            - "glue.amazonaws.com"
        Action:
          - "sts:AssumeRole"
        Path: "/
GlueJob:
  Type: AWS::Glue::Job
  Properties:
  Command:
    Name: glueetl
    ScriptLocation: "s3://example-glue-script-bucket/scripts"
  Name:
    Fn::Sub: ${AWS::StackName}-example
  Role:
    Ref: IAMRole
  GlueVersion: "2.0"

Amazon GuardDuty controls

Topics

Proactive controls
• [CT.GUARDDUTY.PR.1] Require an Amazon GuardDuty detector to have Amazon S3 protection activated

[CT.GUARDDUTY.PR.1] Require an Amazon GuardDuty detector to have Amazon S3 protection activated

This control checks whether Amazon S3 protection is enabled on an Amazon GuardDuty detector.

• Control objective: Establish logging and monitoring
• Implementation: AWS CloudFormation Guard Rule
• Control behavior: Proactive
• Resource types: AWS::GuardDuty::Detector
• AWS CloudFormation guard rule: CT.GUARDDUTY.PR.1 rule specification

Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.GUARDDUTY.PR.1 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.GUARDDUTY.PR.1 example templates

Explanation

Amazon GuardDuty monitors threats against your Amazon S3 resources by analyzing AWS CloudTrail management events and CloudTrail S3 data events. These data sources monitor different kinds of activity. For example, CloudTrail management events for S3 include operations that list or configure S3 buckets, such as ListBuckets, DeleteBuckets, and PutBucketReplication. Examples of data events for S3 include object-level API operations, such as GetObject, ListObjects, DeleteObject, and PutObject.

Amazon GuardDuty monitoring of AWS CloudTrail management events is on by default for all accounts that have enabled GuardDuty, and it is not configurable. Amazon S3 data event logs are a configurable data source in GuardDuty.

AWS Control Tower recommends that you enable Amazon S3 protection in GuardDuty. If the feature is not enabled, GuardDuty cannot fully monitor or generate findings for suspicious access to data stored in your Amazon S3 buckets.
Remediation for rule failure

Set `DataSources.S3Logs` to true.

The examples that follow show how to implement this remediation.

**GuardDuty Detector - Example**

Amazon GuardDuty detector with Amazon S3 protection enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "GuardDutyDetector": {
      "Type": "AWS::GuardDuty::Detector",
      "Properties": {
         "Enable": true,
         "DataSources": {
            "S3Logs": {
               "Enable": true
            }
         }
      }
   }
}
```

**YAML example**

```
GuardDutyDetector:
   Type: AWS::GuardDuty::Detector
Properties:
   Enable: true
DataSources:
   S3Logs:
      Enable: true
```
# CT.GUARDDUTY.PR.1 rule specification

# ###########################################################
##       Rule Specification       ##
###########################################################

# Rule Identifier:
# guardduty_s3_protection_enabled_check

# Description:
# Checks if Amazon S3 protection is enabled on an Amazon GuardDuty detector.

# Reports on:
# AWS::GuardDuty::Detector

# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document does not contain any Amazon GuardDuty detector
# resources
# Then: SKIP

# Scenario: 2
# Given: The input document is an AWS CloudFormation or CloudFormation hook
# document
# And: The input document contains a GuardDuty detector resource
# And: 'Enable' has not been specified or specified with value is bool(false)
# Then: FAIL

# Scenario: 3
# Given: The input document is an AWS CloudFormation or CloudFormation hook
# document
# And: The input document contains a GuardDuty detector resource
# And: 'Enable' is specified with a value of bool(true)
# And: 'DataSources.S3Logs' has not been specified
# Then: FAIL

# Scenario: 4
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains a GuardDuty detector resource
And: 'Enable' is specified and value is bool(true)
And: 'DataSources.S3Logs' has been specified
And: 'Enable' has not been specified within 'S3Logs' or has been specified with a value of bool(false)
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains a GuardDuty detector resource
And: 'Enable' is specified and value is bool(true)
And: 'DataSources.S3Logs' has been specified
And: 'Enable' has been specified within 'S3Logs' with a value of bool(true)
Then: PASS

# Constants
let GUARDDUTY_DETECTOR_TYPE = "AWS::GuardDuty::Detector"
let INPUT_DOCUMENT = this

# Assignments
let guardduty_detectors = Resources.*[ Type == %GUARDDUTY_DETECTOR_TYPE ]

# Primary Rules
rule guardduty_s3_protection_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
    %guardduty_detectors not empty {
        check(%guardduty_detectors.Properties)
        %guardduty_detectors not empty {
            [CT.GUARDDUTY.PR.1]: Require an Amazon GuardDuty detector to have Amazon S3 protection activated
            [FIX]: Set 'DataSources.S3Logs' to true.
        }
    }

rule guardduty_s3_protection_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %GUARDDUTY_DETECTOR_TYPE) {
    check(%INPUT_DOCUMENT.%GUARDDUTY_DETECTOR_TYPE.resourceProperties)
[CT.GUARDDUTY.PR.1]: Require an Amazon GuardDuty detector to have Amazon S3 protection activated

[FIX]: Set 'DataSources.S3Logs' to true.

rule check(guardduty_detector) {
  %guardduty_detector {
    # Scenario: 2
    Enable exists
    Enable == true
    # Scenario: 3
    DataSources exists
    DataSources is_struct
    DataSources {
      # Scenario: 4 and 5
      S3Logs exists
      S3Logs is_struct
      S3Logs {
        Enable exists
        Enable == true
      }
    }
  }
}

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.GUARDDUTY.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
GuardDutyDetector:
  Type: AWS::GuardDuty::Detector
Properties:
  Enable: true
  DataSources:
    S3Logs:
      Enable: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
GuardDutyDetector:
  Type: AWS::GuardDuty::Detector
Properties:
  Enable: true
  DataSources:
    S3Logs:
      Enable: false

AWS Identity and Access Management (IAM) controls

Topics
- [CT.IAM.PR.1] Require that an AWS Identity and Access Management (IAM) inline policy does not have a statement that includes "*" in the Action and Resource elements
• [CT.IAM.PR.2] Require that AWS Identity and Access Management (IAM) customer-managed policies do not contain a statement that includes "*" in the Action and Resource elements

• [CT.IAM.PR.3] Require that AWS Identity and Access Management (IAM) customer-managed policies do not have wildcard service actions

• [CT.IAM.PR.4] Require that an AWS Identity and Access Management (IAM) user does not have an inline or managed policy attached

• [CT.IAM.PR.5] Require that AWS Identity and Access Management (IAM) inline policies do not have wildcard service actions

[CT.IAM.PR.1] Require that an AWS Identity and Access Management (IAM) inline policy does not have a statement that includes "*" in the Action and Resource elements

This control checks that AWS Identity and Access Management (IAM) inline policies do not include Effect: Allow with Action: * over Resource: *.

• **Control objective:** Enforce least privilege

• **Implementation:** AWS CloudFormation Guard Rule

• **Control behavior:** Proactive

• **Resource types:** AWS::IAM::Policy, AWS::IAM::Role, AWS::IAM::User, AWS::IAM::Group

• **AWS CloudFormation guard rule:** [CT.IAM.PR.1 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.IAM.PR.1 rule specification](#)

• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.IAM.PR.1 example templates](#)

**Explanation**

IAM policies define a set of privileges that are granted to users, groups, or roles. In alignment with industry-standard security advice, AWS recommends that your policies grant least privilege, which means to grant only the permissions that are required to perform a task. When you provide full
administrative privileges instead of the minimum set of permissions that the user requires, you may expose the resources to unwanted actions.

Instead of allowing full administrative privileges, determine the specific actions that your users must carry out, and then craft policies that let the users perform only those tasks. It is more secure to start with a minimum set of permissions and grant additional permissions when necessary. Do not start with lenient permissions and try to tighten them later.

Remove IAM policies that have a statement with Effect: Allow that permit Action: * over Resource: *.

Usage considerations

- This control applies only to IAM inline policies with statements that contain an Effect of Allow and that contain both the Action and the Resource element.

Remediation for rule failure

Remove IAM inline policy statements with Effect: Allow that permit Action: * over Resource: *.

The examples that follow show how to implement this remediation.

IAM Policy - Example One

IAM inline policy configured to allow retrieval of objects from an Amazon S3 bucket. The example is shown in JSON and in YAML.

JSON example

```json
{
  "IAMPolicy": {
    "Type": "AWS::IAM::Policy",
    "Properties": {
      "PolicyName": "sample-inline-policy",
      "Roles": [
        {
          "Ref": "IAMRole"
        }
      ]
    }
  }
}
```
The examples that follow show how to implement this remediation.
IAM Role - Example Two

IAM role configured with an inline policy allowing retrieval of objects from an Amazon S3 bucket. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "IAMRole": {
      "Type": "AWS::IAM::Role",
      "Properties": {
         "AssumeRolePolicyDocument": {
            "Version": "2012-10-17",
            "Statement": [
               {
                  "Effect": "Allow",
                  "Principal": {
                     "AWS": {
                        "Ref": "AWS::AccountId"
                     }
                  },
                  "Action": [
                     "sts:AssumeRole"
                  ]
               }
            ]
         },
         "Policies": [
            {
               "PolicyName": "sample-inline-policy",
               "PolicyDocument": {
                  "Version": "2012-10-17",
                  "Statement": [
                     {
                        "Effect": "Allow",
                        "Action": [
                           "s3:GetObject"
                        ],
                        "Resource": [
                           "arn:aws:s3:::samplebucket/*"
                        ]
                     }
                  ]
               }
            }
         ]
      }
   }
}
```
YAML example

```
IAMRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          AWS: !Ref 'AWS::AccountId'
        Action:
          - sts:AssumeRole
  Policies:
    - PolicyName: sample-inline-policy
      PolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Action:
              - s3:GetObject
            Resource:
              - arn:aws:s3:::samplebucket/*
```

CT.IAM.PR.1 rule specification

```
# #############################################################################
##                   Rule Specification                      ##
# #############################################################################
# Rule Name: Proactive controls
```

Proactive controls
# iam_inline_policy_no_statements_with_admin_access_check
#
# Description:
# This control checks that AWS Identity and Access Management (IAM) inline policies
do not include "Effect": "Allow" with "Action": "*" over "Resource": "*".
#
# Reports on:
# AWS::IAM::Policy, AWS::IAM::Role, AWS::IAM::User, AWS::IAM::Group
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any IAM policy, IAM role, IAM user or
# IAM group resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an IAM policy resource
# And: The policy has no statements with 'Effect' set to 'Allow'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an IAM policy resource
# And: The policy has a statement with 'Effect' set to 'Allow'
# And: The policy does not have both Action and resource statements
# Then: SKIP
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an IAM role, IAM user or IAM group resources
# And: 'Policies' is not provided or is an empty list
# Then: SKIP
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an IAM role, IAM user or IAM group resources
# And: 'Policies' is provided as a non-empty list
# And: All IAM policy documents in 'Policies' have no statements with 'Effect' set to 'Allow'
# Then: SKIP
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM policy resource
# And: The policy has a statement with 'Effect' set to 'Allow'
# And: The policy statement has one or more Action statements and one or more Resource statements
# And: At least one Action statement allows all actions (Action value of '*')
# And: At least one Resource statement is a wildcard representing all resources (Resource value of '*')
# Then: FAIL
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM role, IAM user or IAM group resources
# And: 'Policies' is provided as a non-empty list
# And: IAM policy document in 'Policies' has a statement with 'Effect' set to 'Allow'
# And: The policy has one or more 'Action' statements
# And: At least one Action statement allows all actions (Action value of '*')
# And: At least one Resource statement is a wildcard representing all resources (Resource value of '*')
# Then: FAIL
# Scenario: 8
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM policy resource
# And: The policy has a statement with 'Effect' set to 'Allow'
# And: The policy has one or more Action statements and one or more Resource statements
# And: No Action statements allow administrator access (Action value of '*')
# And: No Resources are wildcards representing all resources (Resource value of '*')
# Then: PASS
# Scenario: 9
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM role, IAM user or IAM group resources
# And: 'Policies' is provided as a non-empty list
And: IAM policy document in 'Policies' has a statement with 'Effect' set to 'Allow'
And: The policy has one or more 'Action' statements
And: No Action statements allow administrator access (Action value of '*')
And: No Resources are wildcards representing all resources (Resource value of '*')
Then: PASS

# Constants

let AWS_IAM_POLICY_TYPE = "AWS::IAM::Policy"
let AWS_IAM_ROLE_TYPE = "AWS::IAM::Role"
let AWS_IAM_USER_TYPE = "AWS::IAM::User"
let AWS_IAM_GROUP_TYPE = "AWS::IAM::Group"
let INPUT_DOCUMENT = this

# Assignments

let iam_policies = Resources.*[ Type == %AWS_IAM_POLICY_TYPE ]
let iam_principals = Resources.*[
    Type == %AWS_IAM_ROLE_TYPE or
    Type == %AWS_IAM_USER_TYPE or
    Type == %AWS_IAM_GROUP_TYPE
]

# Primary Rules

rule iam_inline_policy_no_statements_with_admin_access_check when
    is_cfn_template(%INPUT_DOCUMENT)
    %iam_policies not empty {
        check_policy(%iam_policies.Properties)
        <<
            [CT.IAM.PR.1]: Require that an AWS Identity and Access Management (IAM) inline policy does not have a statement that includes "*" in the Action and Resource elements
            [FIX]: Remove IAM inline policy statements with "Effect": "Allow" that permit "Action": "*" over "Resource": "*".
        >>
    }

Proactive controls
rule iam_inline_policy_no_statements_with_admin_access_check when
  is_cfn_hook(%INPUT_DOCUMENT, %AWS_IAM_POLICY_TYPE) {
    check_policy(%INPUT_DOCUMENT.%AWS_IAM_POLICY_TYPE.resourceProperties)
    <<
      [CT.IAM.PR.1]: Require that an AWS Identity and Access Management (IAM) inline
      policy does not have a statement that includes "*" in the Action and Resource elements
      [FIX]: Remove IAM inline policy statements with "Effect": "Allow" that
      permit "Action": "*" over "Resource": "*".
      >>
    }

rule iam_inline_policy_no_statements_with_admin_access_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %iam_principals not empty {
    check_principal(%iam_principals.Properties)
    <<
      [CT.IAM.PR.1]: Require that an AWS Identity and Access Management (IAM) inline
      policy does not have a statement that includes "*" in the Action and Resource elements
      [FIX]: Remove IAM inline policy statements with "Effect": "Allow" that
      permit "Action": "*" over "Resource": "*".
      >>
  }

rule iam_inline_policy_no_statements_with_admin_access_check when
  is_cfn_hook(%INPUT_DOCUMENT, %AWS_IAM_ROLE_TYPE) {
    check_principal(%INPUT_DOCUMENT.%AWS_IAM_ROLE_TYPE.resourceProperties)
    <<
      [CT.IAM.PR.1]: Require that an AWS Identity and Access Management (IAM) inline
      policy does not have a statement that includes "*" in the Action and Resource elements
      [FIX]: Remove IAM inline policy statements with "Effect": "Allow" that
      permit "Action": "*" over "Resource": "*".
      >>
  }

rule iam_inline_policy_no_statements_with_admin_access_check when
  is_cfn_hook(%INPUT_DOCUMENT, %AWS_IAM_USER_TYPE) {
    check_principal(%INPUT_DOCUMENT.%AWS_IAM_USER_TYPE.resourceProperties)
    <<
      [CT.IAM.PR.1]: Require that an AWS Identity and Access Management (IAM) inline
      policy does not have a statement that includes "*" in the Action and Resource elements
      [FIX]: Remove IAM inline policy statements with "Effect": "Allow" that
      permit "Action": "*" over "Resource": "*".
      >>
rule iam_inline_policy_no_statements_with_admin_access_check when
  is_cfn_hook(%INPUT_DOCUMENT, %AWS_IAM_GROUP_TYPE) {
    check_principal(%INPUT_DOCUMENT.%AWS_IAM_GROUP_TYPE.resourceProperties)
    <
      [CT.IAM.PR.1]: Require that an AWS Identity and Access Management (IAM) inline
      policy does not have a statement that includes "*" in the Action and Resource elements
      [FIX]: Remove IAM inline policy statements with "Effect": "Allow" that
      permit "Action": "*" over "Resource": "*".
    >>
  }

# # Parameterized Rules #
#
rule check_policy(policy) {
  %policy [
    filter_policy_document_with_statement_provided(this)
  ] {
    PolicyDocument {
      check_statement(Statement)
    }
  }
}

rule check_principal(iam_principal) {
  %iam_principal [
    filter_iam_principal_with_inline_policy_provided(this)
  ] {
    Policies[*] {
      check_policy(this)
    }
  }
}

rule check_statement(statement) {
  %statement [
    filter_allow_on_action_and_resource(this)
  ] {
    Action exists
    Resource exists
    check_admin_access(Action, Resource)
  }
}
rule filter_allow_on_action_and_resource(statement) {
%statement {
    Effect == "Allow"
    Action exists
    Resource exists
}
}

rule filter_policy_document_with_statement_provided(policy) {
%policy {
    PolicyDocument exists
    PolicyDocument is_struct
    PolicyDocument {
        Statement exists
        filter_statement_non_empty_list(Statement) or
        Statement is_struct
    }
}
}

rule filter_iam_principal_with_inline_policy_provided(iam_principal) {
%iام_principal {
    Policies exists
    Policies is_list
    Policies not empty
}
}

rule filter_statement_non_empty_list(statement) {
%statement {
    this is_list
    this not empty
}
}

rule check_admin_access(actions, resources) {
    when some %actions[*] == "*" {
        %resources[*] != "*"
    }
}

# Proactive controls
CT.IAM.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS:
              Ref: AWS::AccountId
          Action:
            - sts:AssumeRole
    IAMPolicy:
      Type: AWS::IAM::Policy
      Properties:
        PolicyName:
          Fn::Sub: ${AWS::StackName}-inline-policy
        Roles:
          - Ref: IAMRole
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS:
              Ref: AWS::AccountId
          Action:
            - sts:AssumeRole
IAMPolicy:
  Type: AWS::IAM::Policy
  Properties:
    PolicyName:
      Fn::Sub: ${AWS::StackName}-inline-policy
    Roles:
      - Ref: IAMRole
  PolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Action: '*'
        Resource: '*'
[CT.IAM.PR.2] Require that AWS Identity and Access Management (IAM) customer-managed policies do not contain a statement that includes "*" in the Action and Resource elements

This control checks whether AWS Identity and Access Management (IAM) customer managed policies do not include Effect: Allow with Action: * over Resource: *.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::IAM::ManagedPolicy
- **AWS CloudFormation guard rule:** [CT.IAM.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.IAM.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.IAM.PR.2 example templates](#)

**Explanation**

IAM policies define a set of privileges that are granted to users, groups, or roles. In alignment with industry-standard security advice, AWS recommends that your policies grant least privilege, which means to grant only the permissions that are required to perform a task. When you provide full privileges instead of the minimum set of permissions that the user requires, you may expose the resources to unwanted actions.

Instead of allowing full privileges, determine the specific actions that your users must carry out, and then craft policies that let the users perform only those tasks. It is more secure to start with a minimum set of permissions and grant additional permissions when necessary. Do not start with lenient permissions and try to tighten them later.

Remove IAM policies that have a statement with Effect: Allow that permit Action: * over Resource: *.
Usage considerations

- This control checks IAM customer-managed policies only. It does not check inline and AWS-managed policies.
- This control applies only to IAM inline policies with statements that contain an Effect of Allow and that contain both the Action and the Resource element.

Remediation for rule failure

Remove IAM inline policy statements with Effect: Allow that permit Action: * over Resource: *

The examples that follow show how to implement this remediation.

IAM Managed Policy - Example

IAM managed policy configured to allow retrieval of objects from an Amazon S3 bucket. The example is shown in JSON and in YAML.

JSON example

```json
{
   "IAMManagedPolicy": {
      "Type": "AWS::IAM::ManagedPolicy",
      "Properties": {
         "Roles": [
            {
               "Ref": "IAMRole"
            }
         ],
         "PolicyDocument": {
            "Version": "2012-10-17",
            "Statement": [
               {
                  "Effect": "Allow",
                  "Action": [
                     "s3:GetObject"
                  ],
                  "Resource": [
                     "arn:aws:s3:::samplebucket/*"
                  ]
               }
            ]
         }
      }
   }
}
```
YAML example

```
IAMManagedPolicy:
  Type: AWS::IAM::ManagedPolicy
  Properties:
    Roles:
    - !Ref 'IAMRole'
  PolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Action:
          - s3:GetObject
        Resource:
          - arn:aws:s3:::samplebucket/*
```

CT.IAM.PR.2 rule specification

```
# ##########################################################################
##       Rule Specification       ##
# ##########################################################################
#
# Rule Name:
#   iam_managed_policy_no_statements_with_admin_access_check
#
# Description:
#   This control checks whether AWS Identity and Access Management (IAM) customer
#   managed policies do not include "Effect": "Allow" with "Action": "*" over "Resource":
#   "*".
#```
# Reports on:
#   AWS::IAM::ManagedPolicy
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     And: The input document does not contain any IAM managed policy resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     And: The input document contains an IAM managed policy resource
#     And: The policy has no statements with 'Effect' set to 'Allow'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     And: The input document contains an IAM managed policy resource
#     And: The policy has a statement with 'Effect' set to 'Allow'
#     And: The policy does not have both Action and Resource statements
#     Then: SKIP
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     And: The input document contains an IAM managed policy resource
#     And: The policy has a statement with 'Effect' set to 'Allow'
#     And: The policy statement has one or more Action statements and one or more
#          Resource statements
#     And: Within a single policy statement at least one Action statement allows all
#          actions (Action value of '*')
#     And: Within the same policy statement at least one Resource statement is a
#          wildcard representing all
#          resources (Resource value of '*')
#     Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
And: The input document contains an IAM managed policy resource
And: The policy has a statement with 'Effect' set to 'Allow'
And: The policy has one or more Action statements and one or more Resource statements
And: Within a single policy statement no Action statements allow all actions (Action value of '**) And: Within the same policy statement no Resources are wildcards representing all resources (Resource value of '**) Then: PASS

# Constants
#
let AWS_IAM_MANAGED_POLICY_TYPE = "AWS::IAM::ManagedPolicy"
let INPUT_DOCUMENT = this
#
# Assignments
#
let iam_managed_policies = Resources.*[ Type == %AWS_IAM_MANAGED_POLICY_TYPE ]
#
# Primary Rules
#
rule iam_managed_policy_no_statements_with_admin_access_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %iam_managed_policies not empty {
    check(%iam_managed_policies.Properties)
    <<
    [CT.IAM.PR.2]: Require that AWS Identity and Access Management (IAM) customer-managed policies do not contain a statement that includes "**" in the Action and Resource elements
    [FIX]: Remove IAM inline policy statements with "Effect": "Allow" that permit "Action": "**" over "Resource": "**".
    >>
  }
rule iam_managed_policy_no_statements_with_admin_access_check when
  is_cfn_hook(%INPUT_DOCUMENT, %AWS_IAM_MANAGED_POLICY_TYPE) {
  check(%INPUT_DOCUMENT.%AWS_IAM_MANAGED_POLICY_TYPE.resourceProperties)
  <<
[CT.IAM.PR.2]: Require that AWS Identity and Access Management (IAM) customer-managed policies do not contain a statement that includes "*" in the Action and Resource elements

[FIX]: Remove IAM inline policy statements with "Effect": "Allow" that permit "Action": "*" over "Resource": "*".

```language=plaintext
>
```

# Parameterized Rules

```language=plaintext
rule check(policy) {
  %policy [
    filter_policy_document_with_statement_provided(this)
  ] {
    PolicyDocument {
      check_statement(Statement)
    }
  }
}
```

```language=plaintext
rule check_statement(statement) {
  %statement [
    filter_allow_on_action_and_resource(this)
  ] {
    Action exists
    Resource exists
    check_admin_access(Action, Resource)
  }
}
```

```language=plaintext
rule filter_allow_on_action_and_resource(statement) {
  %statement {
    Effect == "Allow"
    Action exists
    Resource exists
  }
}
```

```language=plaintext
rule filter_policy_document_with_statement_provided(policy) {
  %policy {
    PolicyDocument exists
    PolicyDocument is_struct
    PolicyDocument {
```
CT.IAM.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
Resources:
IAMRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          AWS:
            Ref: AWS::AccountId
        Action:
          - sts:AssumeRole
IAMManagedPolicy:
  Type: AWS::IAM::ManagedPolicy
Properties:
  Roles:
    - Ref: IAMRole
PolicyDocument:
  Version: '2012-10-17'
  Statement:
    - Effect: Allow
      Action:
        - s3:GetObject
      Resource:
        - arn:aws:s3:::examplebucket/*

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
[CT.IAM.PR.3] Require that AWS Identity and Access Management (IAM) customer-managed policies do not have wildcard service actions

This control checks that AWS Identity and Access Management (IAM) customer-managed policies do not contain statements of Effect: Allow with Action: Service: * (for example, s3:* ) for individual AWS services, and that the policies do not use the combination of NotAction with an Effect of Allow.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::IAM::ManagedPolicy
- **AWS CloudFormation guard rule:** [CT.IAM.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.IAM.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.IAM.PR.3 example templates](#)

**Explanation**
When you assign permissions to AWS services, it is important to scope the allowed IAM actions in your IAM policies. We recommend that you provision least-privilege permissions by restricting IAM policies to required actions only. Overly permissive policies can lead to privilege escalation, if the policies are attached to an IAM principal that may not require the permission.

**Usage considerations**

- This control checks IAM customer-managed policies only. It does not check inline and AWS-managed policies.
- This control applies only to IAM customer-managed policies with statements that contain an Effect of Allow with an Action or NotAction element present.

**Remediation for rule failure**

Remove statements from IAM customer-managed policies with Effect: Allow and Action: service:* or Effect: Allow and NotAction.

The examples that follow show how to implement this remediation.

**IAM Managed Policy - Example**

IAM managed policy configured to allow the Amazon S3 ListBucket action. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "IAMManagedPolicy": {
      "Type": "AWS::IAM::ManagedPolicy",
      "Properties": {
         "Roles": [
            {
               "Ref": "IAMRole"
            }
         ],
      "PolicyDocument": {
         "Version": "2012-10-17",
         "Statement": [?
```
YAML example

IAMManagedPolicy:
  Type: AWS::IAM::ManagedPolicy
  Properties:
    Roles:
      - !Ref 'IAMRole'
  PolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Action:
          - s3:ListBucket
        Resource:
          - '*'

CT.IAM.PR.3 rule specification

# ##################################################################################################
##       Rule Specification        ##
# ##################################################################################################

# Rule Name:
#   iamManagedPolicy_no_statements_with_full_access_check
# Description:
This control checks that AWS Identity and Access Management (IAM) customer-managed policies do not contain statements of "Effect": "Allow" with "Action": "Service:*" (for example, s3:* ) for individual AWS services, and that the policies do not use the combination of "NotAction" with an "Effect" of "Allow".

# Reports on:
  AWS::IAM::ManagedPolicy

# Rule Parameters:
  None

# Scenarios:
  Scenario: 1
    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
    And: The input document does not contain any IAM Managed Policy resources
    Then: SKIP

  Scenario: 2
    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
    And: The input document contains an IAM Managed Policy resource
    And: The policy has no statements with 'Effect' set to 'Allow'
    Then: SKIP

  Scenario: 3
    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
    And: The input document contains an IAM Managed Policy resource
    And: The policy has a statement with 'Effect' set to 'Allow'
    And: The policy has one or more 'Action' statements
    And: At least one 'Action' statement allows full access to a service ('Action' has a value 'service:*')
    Then: FAIL

  Scenario: 4
    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
    And: The input document contains an IAM Managed Policy resource
    And: The policy has a statement with 'Effect' set to 'Allow'
    And: The policy has one or more 'NotAction' statements
    Then: FAIL

  Scenario: 5
    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an IAM Managed Policy resource
And: The policy has a statement with 'Effect' set to 'Allow'
And: The policy has one or more 'Action' statements
And: No 'Action' statements allow full access to a service ('Action' does not have a value 'service:*')
Then: PASS

# Constants

let AWS_IAM_MANAGED_POLICY_TYPE = "AWS::IAM::ManagedPolicy"
let WILDCARD_ACTION_PATTERN = /^[\w]*[:]*\*$/
let INPUT_DOCUMENT = this

# Assignments

let iam_managed_policies = Resources.*[ Type == %AWS_IAM_MANAGED_POLICY_TYPE ]

# Primary Rules

rule iam_managed_policy_no_statements_with_full_access_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %iam_managed_policies not empty {
    check(%iam_managed_policies.Properties)
    <<
    [CT.IAM.PR.3]: Require that AWS Identity and Access Management (IAM) customer-managed policies do not have wildcard service actions
    [FIX]: Remove statements from IAM customer-managed policies with "Effect": "Allow" and "Action": "service:*" or "Effect": "Allow" and "NotAction".
    >>
  }

rule iam_managed_policy_no_statements_with_full_access_check when
  is_cfn_hook(%INPUT_DOCUMENT, %AWS_IAM_MANAGED_POLICY_TYPE) {
    check(%INPUT_DOCUMENT.%AWS_IAM_MANAGED_POLICY_TYPE.resourceProperties)
    <<
    [CT.IAM.PR.3]: Require that AWS Identity and Access Management (IAM) customer-managed policies do not have wildcard service actions
    [FIX]: Remove statements from IAM customer-managed policies with "Effect": "Allow" and "Action": "service:*" or "Effect": "Allow" and "NotAction".
    >>

Proactive controls
# Parameterized Rules

```plaintext
rule check(policy) {
    %policy {
        filter_policy_document_with_statement_provided(this)
    } {
        PolicyDocument {
            check_statement_no_wildcard_actions(Statement)
            check_statement_no_not_action(Statement)
        }
    }
}

rule check_statement_no_wildcard_actions(statement) {
    %statement {
        filter_allow_on_action(this)
    } {
        Action exists
        check_no_wildcard_action(Action)
    }
}

rule check_statement_no_not_action(statement) {
    %statement {
        filter_allow(this)
    } {
        NotAction not exists
    }
}

rule filter_allow_on_action(statement) {
    %statement {
        Effect == "Allow"
        Action exists
    }
}

rule filter_allow(statement) {
    %statement {
        Effect == "Allow"
    }
}
```

Proactive controls
rule filter_policy_document_with_statement_provided(policy) {
    %policy {
        PolicyDocument exists
        PolicyDocument is_struct
        PolicyDocument {
            Statement exists
            filter_statement_non_empty_list(Statement) or
            Statement is_struct
        }
    }
}

rule filter_statement_non_empty_list(statement) {
    %statement {
        this is_list
        this not empty
    }
}

rule check_no_wildcard_action(actions) {
    %actions[*] {
        this != %WILDCARD_ACTION_PATTERN
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
  IAMRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Principal:
              AWS:
                Ref: AWS::AccountId
            Action:
              - sts:AssumeRole
  IAMManagedPolicy:
    Type: AWS::IAM::ManagedPolicy
    Properties:
      Roles:
        - Ref: IAMRole
      PolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Action:
              - s3:ListBucket
            Resource:
              - '*'
```

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

```
Resources:
  IAMRole:
```
Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          AWS:
            Ref: AWS::AccountId
        Action:
          - sts:AssumeRole

IAMManagedPolicy:
  Type: AWS::IAM::ManagedPolicy
Properties:
  Roles:
    - Ref: IAMRole
  PolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Action: s3:*
        Resource: '*'

[CT.IAM.PR.4] Require that an AWS Identity and Access Management (IAM) user does not have an inline or managed policy attached

This control checks whether your AWS Identity and Access Management (IAM) user has inline or managed (AWS and customer) policies directly attached. Instead, IAM users should inherit permissions from IAM groups or roles.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::IAM::User, AWS::IAM::Policy, AWS::IAM::ManagedPolicy
- **AWS CloudFormation guard rule:** [CT.IAM.PR.4 rule specification](#)

Details and examples
• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the:  
  CT.IAM.PR.4 rule specification

• For examples of PASS and FAIL CloudFormation Templates related to this control, see:  
  CT.IAM.PR.4 example templates

Explanation

By default, IAM users, groups, and roles have no access to AWS resources. IAM policies grant privileges to users, groups, or roles. We recommend that you apply IAM policies directly to groups and roles, but not to users. As the number of users grows, assigning privileges at the group or role level reduces the complexity of access management. Reducing access management complexity may in turn reduce the opportunity for a principal to receive or retain excessive privileges inadvertently.

Remediation for rule failure

Configure IAM users to inherit permissions from IAM groups.

The examples that follow show how to implement this remediation.

IAM User - Example

IAM user configured with no IAM policy or managed policy attachments. The example is shown in JSON and in YAML.

JSON example

```
{
    "IAMUser": {
        "Type": "AWS::IAM::User"
    }
}
```

YAML example

```
IAMUser:
  Type: AWS::IAM::User
```
The examples that follow show how to implement this remediation.

**IAM Policy - Example**

IAM policy configured with no IAM user associations. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "IAMPolicy": {
        "Type": "AWS::IAM::Policy",
        "Properties": {
            "PolicyDocument": {
                "Version": "2012-10-17",
                "Statement": [
                    {
                    "Effect": "Allow",
                    "Action": ["cloudformation:DescribeStacks"],
                    "Resource": "*"
                    }
                ]
            },
            "PolicyName": "sample-policy",
            "Roles": [
                {
                    "Ref": "IAMRole"
                }
            ]
        }
    }
}
```

**YAML example**

```yaml
IAMPolicy:
  Type: AWS::IAM::Policy
  Properties:
    PolicyDocument:
      Version: '2012-10-17'
```
Statement:
- Effect: Allow
  Action:
    - cloudformation:DescribeStacks
  Resource: '*'
PolicyName: sample-policy
Roles:
- !Ref 'IAMRole'

The examples that follow show how to implement this remediation.

IAM Managed Policy - Example

IAM managed policy configured with no IAM user associations. The example is shown in JSON and in YAML.

JSON example

```
{
    "IAMManagedPolicy": {
        "Type": "AWS::IAM::ManagedPolicy",
        "Properties": {
            "PolicyDocument": {
                "Version": "2012-10-17",
                "Statement": [
                    {
                        "Effect": "Allow",
                        "Action": [
                            "cloudformation:DescribeStacks"
                        ],
                        "Resource": "*"
                    }
                ]
            }
        }
    }
}
```

YAML example

Proactive controls
IAMManagedPolicy:
  Type: AWS::IAM::ManagedPolicy
Properties:
  PolicyDocument:
    Version: '2012-10-17'
  Statement:
    - Effect: Allow
      Action:
        - cloudformation:DescribeStacks
      Resource: '*'

CT.IAM.PR.4 rule specification

# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
## Rule Specification
# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
#
# Rule Identifier:
#  iam_user_no_policies_check
#
# Description:
#   This control checks whether your AWS Identity and Access Management (IAM) user has
# inline or managed (AWS and customer) policies directly attached. Instead, IAM users
# should inherit permissions from IAM groups or roles.
#
# Reports on:
#  AWS::IAM::User, AWS::IAM::Policy, AWS::IAM::ManagedPolicy
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#  None
#
# Scenarios:
#  Scenario: 1
#  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any IAM user, policy or managed policy resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM user resource
# And: 'Policies' or 'ManagedPolicyArns' have been specified as a non-empty list
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM policy or managed policy resource
# And: 'Users' has been specified and is a non-empty list
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM user resource
# And: 'Policies' has not been been specified or is an empty list
# And: 'ManagedPolicyArns' has not been specified or is an empty list
# Then: PASS
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM policy or managed policy resource
# And: 'Users' has not been specified or is an empty list
# Then: PASS

# Constants
#
let IAM_USER_TYPE = "AWS::IAM::User"
let IAM_POLICY_TYPE = "AWS::IAM::Policy"
let IAM_MANAGED_POLICY_TYPE = "AWS::IAM::ManagedPolicy"
let INPUT_DOCUMENT = this

# Assignments
#
let iam_users = Resources.*[ Type == %IAM_USER_TYPE ]
let iam_policies = Resources.*[ Type == %IAM_POLICY_TYPE ]
let iam_managed_policies = Resources.*[ Type == %IAM_MANAGED_POLICY_TYPE ]
# Primary Rules

```python
rule iam_user_no_policies_check when is_cfn_template(%INPUT_DOCUMENT)
  %iam_users not empty {
    check_user(%iam_users.Properties)
    <<
      [CT.IAM.PR.4]: Require that an AWS Identity and Access Management (IAM) user does not have an inline or managed policy attached.
      [FIX]: Configure IAM users to inherit permissions from IAM groups.
    >>
  }

rule iam_user_no_policies_check when is_cfn_template(%INPUT_DOCUMENT)
  %iam_policies not empty {
    check_policy(%iam_policies.Properties)
    <<
      [CT.IAM.PR.4]: Require that an AWS Identity and Access Management (IAM) user does not have an inline or managed policy attached.
      [FIX]: Configure IAM users to inherit permissions from IAM groups.
    >>
  }

rule iam_user_no_policies_check when is_cfn_template(%INPUT_DOCUMENT)
  %iam_managed_policies not empty {
    check_policy(%iam_managed_policies.Properties)
    <<
      [CT.IAM.PR.4]: Require that an AWS Identity and Access Management (IAM) user does not have an inline or managed policy attached.
      [FIX]: Configure IAM users to inherit permissions from IAM groups.
    >>
  }

rule iam_user_no_policies_check when is_cfn_hook(%INPUT_DOCUMENT, %IAM_USER_TYPE) {
  check_user(%INPUT_DOCUMENT.%IAM_USER_TYPE.resourceProperties)
  <<
    [CT.IAM.PR.4]: Require that an AWS Identity and Access Management (IAM) user does not have an inline or managed policy attached.
    [FIX]: Configure IAM users to inherit permissions from IAM groups.
  >>
}
	not

rule iam_user_no_policies_check when is_cfn_hook(%INPUT_DOCUMENT, %IAM_POLICY_TYPE) {
  check_policy(%INPUT_DOCUMENT.%IAM_POLICY_TYPE.resourceProperties)
```
[CT.IAM.PR.4]: Require that an AWS Identity and Access Management (IAM) user does not have an inline or managed policy attached.

[FIX]: Configure IAM users to inherit permissions from IAM groups.

rule iam_user_no_policies_check when is_cfn_hook(%INPUT_DOCUMENT, %IAM_MANAGED_POLICY_TYPE) {
    check_policy(%INPUT_DOCUMENT.%IAM_MANAGED_POLICY_TYPE.resourceProperties)
    <<
        [CT.IAM.PR.4]: Require that an AWS Identity and Access Management (IAM) user does not have an inline or managed policy attached.
        [FIX]: Configure IAM users to inherit permissions from IAM groups.
    >>
}

# Parameterized Rules
#
rule check_user(iam_user) {
    %iam_user {
        # Scenario 2 and 4
        Policies not exists or
        exists_and_is_empty_list(Policies)
        
        ManagedPolicyArns not exists or
        exists_and_is_empty_list(ManagedPolicyArns)
    }
}

rule check_policy(policy) {
    %policy {
        # Scenario 3 and 4
        Users not exists or
        exists_and_is_empty_list(Users)
    }
}

rule exists_and_is_empty_list(list_property) {
    %list_property {
        this is_list
        this empty
    }
}
CT.IAM.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
IAMUser:
  Type: AWS::IAM::User
  Properties: {}

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
IAMUser:
  Type: AWS::IAM::User
  Properties:
    ManagedPolicyArns:
[CT.IAM.PR.5] Require that AWS Identity and Access Management (IAM) inline policies do not have wildcard service actions

This control checks whether AWS Identity and Access Management (IAM) inline policies do not include Effect: Allow with Action: Service:* (e.g. s3:*) for individual AWS services or use the combination of NotAction with an Effect of Allow.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::IAM::Policy, AWS::IAM::Role, AWS::IAM::User, AWS::IAM::Group

**AWS CloudFormation guard rule:** [CT.IAM.PR.5 rule specification]

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.IAM.PR.5 rule specification]
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.IAM.PR.5 example templates]

**Explanation**

When you assign permissions to AWS services, it is important to scope the allowed IAM actions in your IAM policies. You should restrict IAM actions to only those actions that are needed. This helps you to provision least privilege permissions. Overly permissive policies might lead to privilege escalation if the policies are attached to an IAM principal that might not require the permission.

**Usage considerations**

- This control only applies to IAM inline policies with statements that contain an Effect of Allow with an Action or NotAction element present
This control only applies to IAM role, user or group resources with one or more inline policies and IAM policy resources with one or more statements configured.

Remediation for rule failure

Remove statements from IAM inline policies with Effect: Allow and Action: service:* or Effect: Allow and NotAction.

The examples that follow show how to implement this remediation.

**IAM Inline Policy - Example One**

IAM role configured with an inline policy allowing the S3 ListBucket action. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "IAMRole": {
        "Type": "AWS::IAM::Role",
        "Properties": {
            "AssumeRolePolicyDocument": {
                "Version": "2012-10-17",
                "Statement": [
                    {
                        "Effect": "Allow",
                        "Principal": {
                            "AWS": {
                                "Ref": "AWS::AccountId"
                            }
                        },
                        "Action": [
                            "sts:AssumeRole"
                        ]
                    }
                ]
            },
            "Policies": [ {
                "PolicyDocument": {
                
```
"Version": "2012-10-17",
"Statement": [
  {
    "Effect": "Allow",
    "Action": [
      "s3:ListBucket"
    ],
    "Resource": [
      "*"
    ]
  }
],
"PolicyName": "sample-policy"
}

YAML example

IAMRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS: !Ref 'AWS::AccountId'
          Action:
            - sts:AssumeRole
  Policies:
    - PolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Action:
              - s3:ListBucket
            Resource:
The examples that follow show how to implement this remediation.

**IAM Inline Policy - Example Two**

IAM user configured with an inline policy allowing the S3 `ListBucket` action. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "IAMUser": {
        "Type": "AWS::IAM::User",
        "Properties": {
            "Policies": [
                {
                    "PolicyDocument": {
                        "Version": "2012-10-17",
                        "Statement": [
                            {
                                "Effect": "Allow",
                                "Action": ["s3:ListBucket"],
                                "Resource": [
                                    "*"
                                ]
                            }
                        ]
                    },
                    "PolicyName": "sample-policy"
                }
            ]
        }
    }
}
```
**IAM User Policy Example**

```yaml
IAMUser:
  Type: AWS::IAM::User
  Properties:
    Policies:
      - PolicyDocument:
          Version: '2012-10-17'
          Statement:
            - Effect: Allow
              Action:
                - s3:ListBucket
              Resource:
                - '*'
            PolicyName: sample-policy
```

The examples that follow show how to implement this remediation.

**IAM Inline Policy - Example Three**

IAM group configured with an inline policy allowing the S3 ListBucket action. The example is shown in JSON and in YAML.

**JSON Example**

```json
{
  "IAMGroup": {
    "Type": "AWS::IAM::Group",
    "Properties": {
      "Policies": [
        {
          "PolicyDocument": {
            "Version": "2012-10-17",
            "Statement": [
              {
                "Effect": "Allow",
                "Action": [
                  "s3:ListBucket"
                ],
                "Resource": [
                  "*"
                ]
              }
            ]
          },
          "PolicyName": "sample-policy"
        }
      ]
    }
  }
}
```
YAML example

IAMGroup:
  Type: AWS::IAM::Group
  Properties:
    Policies:
      - PolicyDocument:
          Version: '2012-10-17'
          Statement:
            - Effect: Allow
              Action:
                - s3:ListBucket
              Resource:
                - '*'
            PolicyName: sample-policy

The examples that follow show how to implement this remediation.

IAM Inline Policy - Example Four

IAM policy associated with an IAM role as an inline policy and configured to allow the S3 ListBucket action. The example is shown in JSON and in YAML.

JSON example
YAML example

IAMPolicy:
  Type: AWS::IAM::Policy
  Properties:
    PolicyName: sample-policy
    Roles:
      - !Ref 'IAMRole'
  PolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Action: [ s3:ListBucket ]
        Resource: [ '*' ]
CT.IAM.PR.5 rule specification

# #################################################################
##       Rule Specification        ##
# #################################################################
#
# Rule Name:
#   iam_inline_policy_no_statements_with_full_access_check
#
# Description:
#   This control checks whether AWS Identity and Access Management (IAM) inline policies do not include "Effect": "Allow" with "Action": "Service:*" (e.g. s3:*) for individual AWS services or use the combination of "NotAction" with an "Effect" of "Allow".
#
# Reports on:
#   AWS::IAM::Policy, AWS::IAM::Role, AWS::IAM::User, AWS::IAM::Group
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any IAM policy, IAM role, IAM user or IAM group resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an IAM policy resource
#     And: The policy has no statements with 'Effect' set to 'Allow'
#     Then: SKIP
#   Scenario: 3
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM role, IAM user or IAM group resource
# And: 'Policies' is not provided or is an empty list
# Then: SKIP

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM role, IAM user or IAM group resource
# And: 'Policies' is provided as a non-empty list
# And: All IAM policy documents in 'Policies' have no statements with 'Effect' set to 'Allow'
# Then: SKIP

# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM policy resource
# And: The policy has a statement with 'Effect' set to 'Allow'
# And: The policy has one or more 'Action' statements
# And: 'Action' statement allows full access to a service ('Action' has a value 'service:*')
# Then: FAIL

# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM role, IAM user or IAM group resource
# And: 'Policies' is provided as a non-empty list
# And: IAM policy document in 'Policies' has a statement with 'Effect' set to 'Allow'
# And: The policy has one or more 'Action' statements
# And: 'Action' statement allows full access to a service ('Action' has a value 'service:*')
# Then: FAIL

# Scenario: 8
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM role, IAM user or IAM user resource
# Scenario: 9
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM policy resource
# And: The policy has a statement with 'Effect' set to 'Allow'
# And: The policy has one or more 'Action' statements
# And: No 'Action' statements allow full access to a service ('Action' does not have a value 'service:*')
# Then: PASS

# Scenario: 10
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an IAM role, IAM user or IAM user resource
# And: 'Policies' is provided as a non-empty list
# And: At least one IAM policy document in 'Policies' has a statement with 'Effect' set to 'Allow'
# And: The policy has one or more 'Action' statements
# And: No 'Action' statements allow full access to a service ('Action' does not have a value 'service:*')
# Then: PASS

# Constants
#
let AWS_IAM_POLICY_TYPE = "AWS::IAM::Policy"
let AWS_IAM_ROLE_TYPE = "AWS::IAM::Role"
let AWS_IAM_USER_TYPE = "AWS::IAM::User"
let AWS_IAM_GROUP_TYPE = "AWS::IAM::Group"
let WILDCARD_ACTION_PATTERN = /^\[/w\]*[:]*\*$/$
let INPUT_DOCUMENT = this

# Assignments
#
let iam_policies = Resources.*[ Type == %AWS_IAM_POLICY_TYPE ]
let iam_principals = Resources.*[
    Type == %AWS_IAM_ROLE_TYPE or
    Type == %AWS_IAM_USER_TYPE or
    Type == %AWS_IAM_GROUP_TYPE]
# Primary Rules

**rule iam_inline_policy_no_statements_with_full_access_check when**

```plaintext
is_cfn_template(%INPUT_DOCUMENT)
```

%iam_policies not empty {
  check_policy(%iam_policies.Properties)
  <<
  [CT.IAM.PR.5]: Require that AWS Identity and Access Management (IAM) inline policies do not have wildcard service actions
  [FIX]: Remove statements from IAM inline policies with "Effect": "Allow" and "Action": "service:*" or "Effect": "Allow" and "NotAction".
  >>
}

**rule iam_inline_policy_no_statements_with_full_access_check when**

```plaintext
is_cfn_hook(%INPUT_DOCUMENT, %AWS_IAM_POLICY_TYPE)
```

```plaintext
check_policy(%INPUT_DOCUMENT.%AWS_IAM_POLICY_TYPE.resourceProperties)
<<
[CT.IAM.PR.5]: Require that AWS Identity and Access Management (IAM) inline policies do not have wildcard service actions
[FIX]: Remove statements from IAM inline policies with "Effect": "Allow" and "Action": "service:*" or "Effect": "Allow" and "NotAction".
>>
```

**rule iam_inline_policy_no_statements_with_full_access_check when**

```plaintext
is_cfn_template(%INPUT_DOCUMENT)
```

%iam_principals not empty {
  check_principal(%iam_principals.Properties)
  <<
  [CT.IAM.PR.5]: Require that AWS Identity and Access Management (IAM) inline policies do not have wildcard service actions
  [FIX]: Remove statements from IAM inline policies with "Effect": "Allow" and "Action": "service:*" or "Effect": "Allow" and "NotAction".
  >>
}

**rule iam_inline_policy_no_statements_with_full_access_check when**

```plaintext
is_cfn_hook(%INPUT_DOCUMENT, %AWS_IAM_ROLE_TYPE)
```
check_principal(%INPUT_DOCUMENT.%AWS_IAM_ROLE_TYPE.resourceProperties)
<<
[CT.IAM.PR.5]: Require that AWS Identity and Access Management (IAM) inline policies do not have wildcard service actions
[FIX]: Remove statements from IAM inline policies with "Effect": "Allow" and "Action": "service:*" or "Effect": "Allow" and "NotAction".
>>
}

rule iam_inline_policy_no_statements_with_full_access_check when is_cfn_hook(%INPUT_DOCUMENT, %AWS_IAM_USER_TYPE) {
    check_principal(%INPUT_DOCUMENT.%AWS_IAM_USER_TYPE.resourceProperties)
<<
[CT.IAM.PR.5]: Require that AWS Identity and Access Management (IAM) inline policies do not have wildcard service actions
[FIX]: Remove statements from IAM inline policies with "Effect": "Allow" and "Action": "service:*" or "Effect": "Allow" and "NotAction".
>>
}

rule iam_inline_policy_no_statements_with_full_access_check when is_cfn_hook(%INPUT_DOCUMENT, %AWS_IAM_GROUP_TYPE) {
    check_principal(%INPUT_DOCUMENT.%AWS_IAM_GROUP_TYPE.resourceProperties)
<<
[CT.IAM.PR.5]: Require that AWS Identity and Access Management (IAM) inline policies do not have wildcard service actions
[FIX]: Remove statements from IAM inline policies with "Effect": "Allow" and "Action": "service:*" or "Effect": "Allow" and "NotAction".
>>
}

#
# Parameterized Rules
#
rule check_policy(policy) {
    %policy [
        filter_policy_document_with_statement_provided(this)
    ] {
        PolicyDocument {
            check_statement_no_wildcard_actions(Statement)
            check_statement_no_not_action(Statement)
        }
    }
}
rule check_principal(iam_principal) {
    %iam_principal [
        filter_iam_principal_with_inline_policy_provided(this)
    ] {
        Policies[*] {
            check_policy(this)
        }
    }
}

rule check_statement_no_wildcard_actions(statement) {
    %statement [
        filter_allow_on_action(this)
    ] {
        Action exists
        check_no_wildcard_action(Action)
    }
}

rule check_statement_no_not_action(statement) {
    %statement [
        filter_allow(this)
    ] {
        NotAction not exists
    }
}

rule filter_allow_on_action(statement) {
    %statement {
        Effect == "Allow"
        Action exists
    }
}

rule filter_allow(statement) {
    %statement {
        Effect == "Allow"
    }
}

rule filter_policy_document_with_statement_provided(policy) {
    %policy {
        Proactive controls
        1523
    }

PolicyDocument exists
PolicyDocument is_struct
PolicyDocument {
    Statement exists
    filter_statement_non_empty_list(Statement) or
    Statement is_struct
}
}
}

rule filter_iam_principal_with_inline_policy_provided(iam_principal) {
    %iam_principal {
        Policies exists
        Policies is_list
        Policies not empty
    }
}

rule filter_statement_non_empty_list(statement) {
    %statement {
        this is_list
        this not empty
    }
}

rule check_no_wildcard_action(actions) {
    %actions[*] {
        this != %WILDCARD_ACTION_PATTERN
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.IAM.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS:
              Ref: AWS::AccountId
          Action:
            - sts:AssumeRole
IAMPolicy:
  Type: AWS::IAM::Policy
  Properties:
    PolicyName:
      Fn::Sub: ${AWS::StackName}-example
    Roles:
      - Ref: IAMRole
    PolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Action:
            - s3:ListBucket
          Resource:
            - '*'
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS:
              Ref: AWS::AccountId
          Action:
            - sts:AssumeRole
IAMPolicy:
  Type: AWS::IAM::Policy
  Properties:
    PolicyName:
      Fn::Sub: ${AWS::StackName}-example
    Roles:
      - Ref: IAMRole
    PolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Action: s3:*
          Resource: '*'

AWS Key Management Service (AWS KMS) controls

Topics

- [CT.KMS.PR.1] Require any AWS KMS key to have rotation configured
- [CT.KMS.PR.2] Require that an AWS Key Management Service asymmetric key with RSA key material used for encryption has a key length greater than 2048 bits
- [CT.KMS.PR.3] Require an AWS Key Management Service key policy to have a statement that limits creation of AWS KMS grants to AWS services
[CT.KMS.PR.1] Require any AWS KMS key to have rotation configured

This control checks whether key rotation is enabled for AWS KMS customer managed keys.

- Control objective: Encrypt data at rest
- Implementation: AWS CloudFormation Guard Rule
- Control behavior: Proactive
- Resource types: AWS::KMS::Key
- AWS CloudFormation guard rule: CT.KMS.PR.1 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.KMS.PR.1 rule specification
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.KMS.PR.1 example templates

Explanation

Key rotation minimizes the possibility of key exposure to malicious users. Cryptographic best practices discourage extensive reuse of encryption keys. Rotation of keys on regular basis helps you meet organizational security and compliance requirements.

Usage considerations

- This control applies only to AWS KMS symmetric-encryption, customer managed keys.

Remediation for rule failure

Set EnableKeyRotation to true for AWS KMS symmetric-encryption keys.

The examples that follow show how to implement this remediation.

AWS KMS key - Example

AWS KMS customer managed key configured with key rotation activated. The example is shown in JSON and in YAML.
**JSON example**

```json
{
    "KMSKey": {
        "Type": "AWS::KMS::Key",
        "Properties": {
            "PendingWindowInDays": 7,
            "KeyPolicy": {
                "Version": "2012-10-17",
                "Id": "sample-policy",
                "Statement": [
                    {
                        "Sid": "Enable IAM User Permissions",
                        "Effect": "Allow",
                        "Principal": {
                            "AWS": {
                                "Fn::Sub": "arn:${AWS::Partition}:iam::${AWS::AccountId}:root"
                            }
                        },
                        "Action": "kms:*",
                        "Resource": "*"
                    }
                ]
            }
        }
    }
    "EnableKeyRotation": true
}
```

**YAML example**

```yaml
KMSKey:
  Type: AWS::KMS::Key
  Properties:
    PendingWindowInDays: 7
  KeyPolicy:
    Version: 2012-10-17
    Id: sample-policy
    Statement:
```

**Proactive controls**
Sid: Enable IAM User Permissions
    Effect: Allow
    Principal:
        AWS: !Sub 'arn:${AWS::Partition}:iam::${AWS::AccountId}:root'
    Action: kms:*
    Resource: '*'
    EnableKeyRotation: true

CT.KMS.PR.1 rule specification

# #####################################################################
##     Rule Specification     ##
# #####################################################################
# Rule Identifier:                       
#     kms_key_rotation_enabled_check     
# 
# Description:                           
#     This control checks whether key rotation is enabled for AWS KMS customer managed keys.
# 
# Reports on:                            
#     AWS::KMS::Key                    
# 
# Evaluates:                             
#     AWS CloudFormation, AWS CloudFormation hook
# 
# Rule Parameters:                      
#     None                            
# 
# Scenarios:                             
#     Scenario: 1                      
#         Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#         And: The input document does not contain any KMS key resources
#         Then: SKIP                   
#     Scenario: 2                      
#         Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#         And: The input document contains a KMS key resource
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a KMS key resource
# And: 'KeySpec' is not provided or is provided and is set to 'SYMMETRIC_DEFAULT'
# And: 'EnableKeyRotation' is not provided
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a KMS key resource
# And: 'KeySpec' is not provided or is provided and is set to 'SYMMETRIC_DEFAULT'
# And: 'EnableKeyRotation' is provided and is set to bool(false)
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a KMS key resource
# And: 'KeySpec' is not provided or is provided and is set to 'SYMMETRIC_DEFAULT'
# And: 'EnableKeyRotation' is provided and is set to bool(true)
# Then: PASS

# Constants
#
let KMS_KEY_TYPE = "AWS::KMS::Key"
let INPUT_DOCUMENT = this

# Assignments
#
let kms_keys = Resources.*[ Type == %KMS_KEY_TYPE ]

# Primary Rules
#
rule kms_key_rotation_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%kms_keys not empty {
  check(%kms_keys.Properties)
    %kms_keys not empty {
      [CT.KMS.PR.1]: Require any AWS KMS key to have rotation configured
      [FIX]: Set 'EnableKeyRotation' to 'true' for AWS KMS symmetric-encryption keys.
rule kms_key_rotation_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %KMS_KEY_TYPE) {
    check(%INPUT_DOCUMENT.%KMS_KEY_TYPE.resourceProperties)
    <<
    [CT.KMS.PR.1]: Require any AWS KMS key to have rotation configured
    [FIX]: Set 'EnableKeyRotation' to 'true' for AWS KMS symmetric-encryption keys.
    >>
}

# Parameterized Rules
#
rule check(kms_keys) {
    %kms_keys[
        # Scenario 2
        filter_is_kms_cmk_symmetric_key(this)
    ] {
        # Scenario 3, 4 and 5
        EnableKeyRotation exists
        EnableKeyRotation == true
    }
}

rule filter_is_kms_cmk_symmetric_key(kms_key) {
    %kms_key {
       KeySpec not exists or
        KeySpec == "SYMMETRIC_DEFAULT"
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
CT.KMS.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  Key:
    Type: AWS::KMS::Key
    Properties:
      PendingWindowInDays: 7
      KeyPolicy:
        Version: 2012-10-17
        Id: example-policy
        Statement:
          - Sid: Enable IAM User Permissions
            Effect: Allow
            Principal:
              AWS:
                Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
            Action: kms:*
            Resource: '*'
    EnableKeyRotation: true
```

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

```yaml
Resources:
  Key:
    Type: AWS::KMS::Key
    Properties:
      PendingWindowInDays: 7
      KeyPolicy:
        Version: 2012-10-17
```

Proactive controls
Id: example-policy
Statement:
  - Sid: Enable IAM User Permissions
    Effect: Allow
    Principal:
      AWS:
        Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
      Action: kms:*
      Resource: '*'
      EnableKeyRotation: false

[CT.KMS.PR.2] Require that an AWS Key Management Service asymmetric key with RSA key material used for encryption has a key length greater than 2048 bits

This control checks whether an AWS KMS asymmetric key with RSA key material, which is used for encryption and decryption, to use a key spec with a key length greater than 2048 bits (that is, a key spec other than RSA_2048).

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::KMS::Key
- **AWS CloudFormation guard rule:** [CT.KMS.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.KMS.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.KMS.PR.2 example templates](#)

**Explanation**

AWS Control Tower recommends using an RSA key spec with a key length greater than 2048 bits, when you are using such keys for encryption and decryption. The key spec determines whether the KMS key is symmetric or asymmetric. It also determines the type of key material, and the
algorithms it supports. AWS KMS supports asymmetric KMS keys that represent a mathematically-related RSA or elliptic curve (ECC) public and private key pair. A KMS key with an RSA key pair can be used for encryption and decryption, or for signing and verification (but not both). AWS KMS supports several key lengths for different security requirements.

### Usage considerations

- This control applies only to a KMS key with an RSA key spec, which is configured for encryption and decryption.

### Remediation for rule failure

For KMS keys with an RSA keyspec, which are configured for encryption and decryption (KeyUsage of ENCRYPT_DECRYPT), set the KeySpec parameter to a key spec other than RSA_2048.

The examples that follow show how to implement this remediation.

**AWS KMS key - Example**

An AWS KMS asymmetric key configured for encryption and decryption, with an RSA_4096 key spec. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "Key": {
        "Type": "AWS::KMS::Key",
        "Properties": {
            "KeyPolicy": {
                "Version": "2012-10-17",
                "Id": "example-policy",
                "Statement": [
                    {
                        "Sid": "Enable IAM User Permissions",
                        "Effect": "Allow",
                        "Principal": {
                            "AWS": {
                                "Fn::Sub": "arn:${AWS::Partition}:iam::${AWS::AccountId}:root"
                            }
                        }
                    }
                ]
            }
        }
    }
}
```
YAML example

Key:
Type: AWS::KMS::Key
Properties:
  KeyPolicy:
    Version: '2012-10-17'
    Id: example-policy
    Statement:
      - Sid: Enable IAM User Permissions
        Effect: Allow
        Principal:
          AWS: !Sub 'arn:${AWS::Partition}:iam:${AWS::AccountId}:root'
        Action: kms:*
        Resource: '*'
    KeyUsage: ENCRYPT_DECRYPT
    KeySpec: RSA_4096

CT.KMS.PR.2 rule specification

# ##############################################################################
## Rule Specification
# ##############################################################################
#
# Rule Name:
#   kms_asymmetric_rsa_keyspec_check
# Description:
# This control checks whether an AWS KMS asymmetric key with RSA key material, which
is used for encryption and decryption, to use a key spec with a key length greater
than 2048 bits (that is, a key spec other than 'RSA_2048').
#
# Reports on:
#   AWS::KMS::Key
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any KMS key resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a KMS key resource
#     And: 'KeyUsage' has been provided and is a value other than 'ENCRYPT_DECRYPT'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a KMS key resource
#     And: 'KeyUsage' has not been provided or has been provided and is set to
#         'ENCRYPT_DECRYPT'
#     And: 'KeySpec' has not been provided or has been provided and is set to a
#         key spec other than an RSA key spec (does not begin with 'RSA_')
#     Then: SKIP
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a KMS key resource
#     And: 'KeyUsage' has not been provided or has been provided and is set to
#         'ENCRYPT_DECRYPT'
#     And: 'KeySpec' has been provided and is set to an RSA key spec (begins with
#         'RSA_')
# And: 'KeySpec' has been set to a disallowed RSA key spec ('RSA_2048')
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a KMS key resource
# And: 'KeyUsage' has not been provided or has been provided and is set to 'ENCRYPT_DECRYPT'
# And: 'KeySpec' has been provided and is set to an RSA key spec (begins with 'RSA_')
# And: 'KeySpec' has not been set to a disallowed RSA key spec ('RSA_2048')
# Then: PASS

# Constants
#
let KMS_KEY_TYPE = "AWS::KMS::Key"
let RSA_KEYSPEC_PATTERN = /^RSA_/
let ENCRYPTION_KEY_USAGE = "ENCRYPT_DECRYPT"
let DISALLOWED_RSA_KEY_SPECS = [ "RSA_2048" ]
let INPUT_DOCUMENT = this

# Assignments
#
let kms_keys = Resources.*[ Type == %KMS_KEY_TYPE ]

# Primary Rules
#
rule kms_asymmetric_rsa_keyspec_check when is_cfn_template(%INPUT_DOCUMENT)
%kms_keys not empty {
    check(%kms_keys.Properties)
        %kms_keys not empty {
            [CT.KMS.PR.2]: Require that an AWS KMS asymmetric key with RSA key material used for encryption has a key length greater than 2048 bits
            [FIX]: For KMS keys with an RSA keyspec, which are configured for encryption and decryption ('KeyUsage' of 'ENCRYPT_DECRYPT'), set the 'KeySpec' parameter to a key spec other than 'RSA_2048'.
        }
    }
}

rule kms_asymmetric_rsa_keyspec_check when is_cfn_hook(%INPUT_DOCUMENT, %KMS_KEY_TYPE) {
}
check(%INPUT_DOCUMENT.%KMS_KEY_TYPE.resourceProperties)
<<
[CT.KMS.PR.2]: Require that an AWS KMS asymmetric key with RSA key material used for encryption has a key length greater than 2048 bits
[FIX]: For KMS keys with an RSA keyspec, which are configured for encryption and decryption ('KeyUsage' of 'ENCRYPT_DECRYPT'), set the 'KeySpec' parameter to a keyspec other than 'RSA_2048'.
>>
}

# Parameterized Rules
#
rule check(kms_keys) {
  %kms_keys[
    # Scenarios 2 and 3
    filter_is_kms_rsa_asymmetric_encryption_key(this)
  ] {
    # Scenario 4 and 5
    KeySpec exists
    KeySpec not in %DISALLOWED_RSA.Keyspecs
  }
}

rule filter_is_kms_rsa_asymmetric_encryption_key(kms_key) {
  %kms_key {
    KeyUsage not exists or
    KeyUsage == %ENCRYPTION_KEY_USAGE

    KeySpec exists
    KeySpec == %RSA.Keyspec_PATTERN
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
CT.KMS.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  Key:
    Type: AWS::KMS::Key
    Properties:
      KeyPolicy:
        Version: '2012-10-17'
        Id: example-policy
        Statement:
          - Sid: Enable IAM User Permissions
            Effect: Allow
            Principal:
              AWS:
                Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
            Action: kms:*
            Resource: '*'
            KeyUsage: ENCRYPT_DECRYPT
           KeySpec: RSA_4096

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  Key:
    Type: AWS::KMS::Key
    Properties:
KeyPolicy:
  Version: '2012-10-17'
  Id: example-policy
  Statement:
    - Sid: Enable IAM User Permissions
      Effect: Allow
      Principal:
        AWS:
          Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
        Action: kms:*
        Resource: '*'
      KeyUsage: ENCRYPT_DECRYPT
     KeySpec: RSA_2048

[CT.KMS.PR.3] Require an AWS Key Management Service key policy to have a statement that limits creation of AWS KMS grants to AWS services

This control checks whether an AWS KMS key has an associated key policy statement that limits creation of AWS KMS grants to AWS services only.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::KMS::Key
- **AWS CloudFormation guard rule:** [CT.KMS.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.KMS.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.KMS.PR.3 example templates](#)

**Explanation**

Users with permission to create grants for a KMS key (kms:CreateGrant) can use a grant to allow other users and roles, including AWS services, to use the KMS key (grantee principals). Grantee
principals can be identities in your own AWS account, or identities from a different account or organization.

By denying creation of AWS KMS grants unless the request originates from an AWS service, you prevent grants from being assigned directly to principals other than AWS service principals, and you reduce the opportunities for grant misuse. The `kms:GrantIsForAWSResource` condition helps check whether the `CreateGrant` operation is being called by an AWS service integrated with AWS KMS, on behalf of another principal. The `aws:PrincipalIsAWSService` condition helps check whether the `CreateGrant` operation is being called directly by an AWS service principal.

### Usage considerations

- If you must use additional conditions on your grants, or if you must issue AWS KMS grants directly to your IAM principals for a customer-managed key, do not enable this control. This control requires a policy statement that denies the creation of AWS KMS grants for your customer-managed KMS keys, if the request does not originate from an AWS service that's integrated with AWS KMS, or from an AWS service principal.

### Remediation for rule failure

Configure an AWS KMS policy statement that denies access to the `kms:CreateGrant` operation for all principals when the `kms:GrantIsForAWSResource` and `aws:PrincipalIsAWSService` conditions are both false, using the `BoolIfExists` condition operator.

The examples that follow show how to implement this remediation.

**AWS KMS key - Example**

An AWS KMS key, configured to deny creation of AWS KMS grants where the `CreateGrant` request does not originate from an AWS service principal. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "Key": {
        "Type": "AWS::KMS::Key",
        "Properties": {
            "KeyUsage": "ENCRYPT_DECRYPT",
```
"KeySpec": "SYMMETRIC_DEFAULT",
"KeyPolicy": {
    "Version": "2012-10-17",
    "Id": "sample-policy",
    "Statement": [
        {
            "Sid": "Enable IAM User Permissions",
            "Effect": "Allow",
            "Principal": {
                "AWS": {
                    "Fn::Sub": "arn:${AWS::Partition}:iam::${AWS::AccountId}:root"
                }
            },
            "Action": "kms:*",
            "Resource": "*"
        },
        {
            "Effect": "Deny",
            "Action": "kms:CreateGrant",
            "Resource": "*",
            "Principal": "*",
            "Condition": {
                "BoolIfExists": {
                    "kms:GrantIsForAWSResource": "false",
                    "aws:PrincipalIsAWSService": "false"
                }
            }
        }
    ]
}
KeySpec: SYMMETRIC_DEFAULT
KeyPolicy:
  Version: '2012-10-17'
  Id: sample-policy
  Statement:
    - Sid: Enable IAM User Permissions
      Effect: Allow
      Principal:
        AWS: !Sub 'arn:${AWS::Partition}:iam:${AWS::AccountId}:root'
      Action: kms:*
      Resource: '*'
    - Effect: Deny
      Action: kms:CreateGrant
      Resource: '*'
      Principal: '*'
      Condition:
        BoolIfExists:
          kms:GrantIsForAWSResource: 'false'
          aws:PrincipalIsAWSIService: 'false'

CT.KMS.PR.3 rule specification

```
# ###################################################################
##      Rule Specification      ##
# ###################################################################
#
# Rule Name:
#   kms_create_grant_aws_service_check
#
# Description:
#   This control checks whether an AWS KMS key has an associated key policy statement that limits creation of AWS KMS grants to AWS services only.
#
# Reports on:
#   AWS::KMS::Key
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
```
# None
#
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any KMS key resources
# Then: SKIP
#
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a KMS key resource
# And: 'Statement' in 'KeyPolicy' has not been provided or has been provided as
# an empty list
# Then: FAIL
#
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a KMS key resource
# And: 'Statement' in 'KeyPolicy' has been provided as a non-empty list
# And: 'Statement' in 'KeyPolicy' does not include a statement that denies all
# Principals ("*", AWS: "+")
# create grant permissions ('kms:CreateGrant') on the KMS key (resource of
# "*")
# when the conditions 'kms:GrantIsForAWSResource' and
# 'aws:PrincipalIsAWSService'
# are both 'false' ('BoolIfExists' condition operator)
# Then: FAIL
#
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a KMS key resource
# And: 'Statement' in 'KeyPolicy' has been provided as a non-empty list
# And: 'Statement' in 'KeyPolicy' includes a statement that denies all Principals
# ("*", AWS: "+")
# create grant permissions ('kms:CreateGrant') on the KMS key (resource of
# "*")
# when the conditions 'kms:GrantIsForAWSResource' and
# 'aws:PrincipalIsAWSService'
# are both 'false' ('BoolIfExists' condition operator)
# Then: PASS

# Constants
let INPUT_DOCUMENT = this
let KMS_KEY_TYPE = "AWS::KMS::Key"
let KMS_GRANT_IS_FOR_AWS_RESOURCE_KEY_PATTERN = /^(?i)kms:GrantIsForAWSResource$/
let AWS_PRINCIPAL_IS_AWS_SERVICE_KEY_PATTERN = /^(?i)aws:PrincipalIsAWSService$/
let ALLOWED_KEY_PATTERNS = [/^(?i)kms:GrantIsForAWSResource$/, /^(?i)aws:PrincipalIsAWSService$/]

# Assignments
let kms_keys = Resources.*[ Type == %KMS_KEY_TYPE ]

# Primary Rules
rule kms_create_grant_aws_service_check when is_cfn_template(%INPUTDOCUMENT)
    %kms_keys not empty {
        check(%kms_keys.Properties)
        %kms_keys not empty {
            [CT.KMS.PR.3]: Require an AWS KMS key policy to have a statement that limits creation of AWS KMS grants to AWS services
            [FIX]: Configure a KMS keys policy statement that denies access to the 'kms:CreateGrant' operation for all principals when the 'kms:GrantIsForAWSResource' and 'aws:PrincipalIsAWSService' conditions are both false, using the 'BoolIfExists' condition operator.
        }}

rule kms_create_grant_aws_service_check when is_cfn_hook(%INPUTDOCUMENT, %KMS_KEY_TYPE) {
    check(%INPUTDOCUMENT.%KMS_KEY_TYPE.resourceProperties)
    %KMS_KEY_TYPE not empty {
        [CT.KMS.PR.3]: Require an AWS KMS key policy to have a statement that limits creation of AWS KMS grants to AWS services
        [FIX]: Configure a KMS key policy statement that denies access to the 'kms:CreateGrant' operation for all principals when the 'kms:GrantIsForAWSResource' and 'aws:PrincipalIsAWSService' conditions are both false, using the 'BoolIfExists' condition operator.
    }}

# Parameterized Rules

Proactive controls
rule check(kms_keys) {
  %kms_keys {
    # Scenario 2
    KeyPolicy exists
    KeyPolicy is_struct

    KeyPolicy {
      Statement exists
      Statement is_list
      Statement not empty

      # Scenario 3 and 4
      some Statement[*] {
        check_statement_create_grant_aws_services_only(this)
      }
    }
  }
}

rule check_statement_create_grant_aws_services_only(statement) {
  %statement{
    check_all_required_statement_properties(this)

    Effect == "Deny"
    Action[*] in ["kms:CreateGrant"]

    Principal == "*" or
    Principal {
      AWS exists
      AWS == "*"
    }

    Resource[*] == "*"

    Condition is_struct
    struct_contains_only_allowed_keys(Condition, ["BoolIfExists"])

    Condition {
      BoolIfExists exists
      BoolIfExists is_struct

      struct_contains_only_allowed_keys(BoolIfExists, %ALLOWED_KEY_PATTERNS)
      struct_contains_key_with_value(BoolIfExists, %KMS_GRANT_IS_FOR_AWS_RESOURCE_KEY_PATTERN, "false")
  }
struct_contains_key_with_value(BoolIfExists, 
%AWS_PRINCIPAL_IS_AWS_SERVICE_KEY_PATTERN, "false")
}
}
}
}
}

rule check_all_required_statement_properties(statement) {
  %statement {
    Effect exists
    Action exists
    Principal exists
    Condition exists
    Resource exists
  }
}

rule struct_contains_only_allowed_keys(struct, allowed_keys) {
  let disallowed_keys = %struct[
    keys not in %allowed_keys
  ]
  %disallowed_keys empty
}

rule struct_contains_key_with_value(struct, key, value) {
  let key_present = %struct[
    keys == %key
  ]
  %key_present not empty
  %key_present == %value
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
**CT.KMS.PR.3 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

Resources:

Key:
- Type: AWS::KMS::Key
- Properties:
  - KeyUsage: ENCRYPT_DECRYPT
  - KeySpec: SYMMETRIC_DEFAULT
- KeyPolicy:
  - Version: '2012-10-17'
  - Id: example-policy
  - Statement:
    - Sid: Enable IAM User Permissions
      - Effect: Allow
      - Principal:
        - AWS:
          - Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
          - Action: kms:*
          - Resource: '*'
        - Effect: Deny
          - Action: kms:CreateGrant
          - Resource: '*'
          - Principal: '*'
          - Condition:
            - BoolIfExists:
              - kms:GrantIsForAWSResource: 'false'
              - aws:PrincipalIsAWSService: 'false'

**FAIL Example** - Use this template to verify that the control prevents non-compliant resource creation.
Amazon Kinesis controls

Topics

- [CT.KINESIS.PR.1] Require any Amazon Kinesis data stream to have encryption at rest configured

[CT.KINESIS.PR.1] Require any Amazon Kinesis data stream to have encryption at rest configured

This control checks whether Amazon Kinesis data streams are encrypted at rest with server-side encryption.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Kinesis::Stream
- **AWS CloudFormation guard rule:** [CT.KINESIS.PR.1 rule specification](#)

Details and examples
For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the:  
CT.KINESIS.PR.1 rule specification

For examples of PASS and FAIL CloudFormation Templates related to this control, see:  
CT.KINESIS.PR.1 example templates

Explanation

Server-side encryption is a feature in Amazon Kinesis data streams that encrypts data automatically, before the data is at rest, by using an AWS KMS key. Data is encrypted before it is written to the Kinesis stream storage layer, and decrypted after it is retrieved from storage. As a result, your data is encrypted at rest within the Amazon Kinesis data stream service.

Remediation for rule failure

Specify a StreamEncryption configuration, with EncryptionType set to KMS and KeyId set to an AWS KMS key identifier.

The examples that follow show how to implement this remediation.

Amazon Kinesis Data Stream - Example

Amazon Kinesis data stream configured to encrypt data at rest with server-side encryption, using an AWS KMS key. The example is shown in JSON and in YAML.

JSON example

```json
{
  "KinesisStream": {
    "Type": "AWS::Kinesis::Stream",
    "Properties": {
      "RetentionPeriodHours": 168,
      "ShardCount": 3,
      "StreamEncryption": {
        "EncryptionType": "KMS",
        "KeyId": {
          "Ref": "KMSKey"
        }
      }
    }
  }
}
```
YAML example

```
KinesisStream:
  Type: AWS::Kinesis::Stream
  Properties:
    RetentionPeriodHours: 168
    ShardCount: 3
    StreamEncryption:
      EncryptionType: KMS
      KeyId: !Ref 'KMSKey'
```

CT.KINESIS.PR.1 rule specification

```
# ####################################################################
##     Rule Specification     ##
####################################################################
#
# Rule Identifier:
#   kinesis_stream_encrypted_check
#
# Description:
#   This control checks whether Amazon Kinesis data streams are encrypted at rest with
#   server-side encryption.
#
# Reports on:
#   AWS::Kinesis::Stream
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
```
# And: The input document does not contain any Kinesis stream resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Kinesis stream resource
# And: 'StreamEncryption' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Kinesis stream resource
# And: 'StreamEncryption' has been provided
# And: 'StreamEncryption.EncryptionType' has not been provided or provided as an empty string
# And: 'StreamEncryption.KeyId' has not been provided or provided as an empty string or invalid local reference
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Kinesis stream resource
# And: 'StreamEncryption' has been provided
# And: 'StreamEncryption.EncryptionType' has been provided as a non-empty string
# And: 'StreamEncryption.KeyId' has not been provided or provided as an empty string or invalid local reference
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Kinesis stream resource
# And: 'StreamEncryption' has been provided
# And: 'StreamEncryption.EncryptionType' has not been provided or provided as an empty string
# And: 'StreamEncryption.KeyId' has been provided as a non-empty string or valid local reference
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Kinesis stream resource
# And: 'StreamEncryption' has been provided
# And: 'StreamEncryption.EncryptionType' has been provided as a non-empty string
And: 'StreamEncryption.KeyId' has been provided as a non-empty string or valid local reference
Then: PASS

# Constants

let KINESIS_STREAM_TYPE = "AWS::Kinesis::Stream"
let INPUT_DOCUMENT = this

# Assignments

let kinesis_streams = Resources.*[ Type == %KINESIS_STREAM_TYPE ]

# Primary Rules

rule kinesis_stream_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
%kinesis_streams not empty {
    check(%kinesis_streams.Properties)
    %kinesis_streams not empty {
        [CT.KINESIS.PR.1]: Require any Amazon Kinesis data stream to have encryption at rest configured
        [FIX]: Specify a 'StreamEncryption' configuration, with 'EncryptionType' set to 'KMS' and 'KeyId' set to an AWS KMS key identifier.
        >>
    }
}

rule kinesis_stream_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %KINESIS_STREAM_TYPE) {
    check(%INPUT_DOCUMENT.%KINESIS_STREAM_TYPE.resourceProperties)
    [CT.KINESIS.PR.1]: Require any Amazon Kinesis data stream to have encryption at rest configured
    [FIX]: Specify a 'StreamEncryption' configuration, with 'EncryptionType' set to 'KMS' and 'KeyId' set to an AWS KMS key identifier.
    >>
}

# Parameterized Rules

rule check(kinesis_stream) {

%kinesis_stream {
    # Scenario 2
    StreamEncryption exists
    StreamEncryption is_struct

    StreamEncryption {
        # Scenario 3
        EncryptionType exists
        KeyId exists

        # Scenario 4, 5 and 6
        check_is_string_and_not_empty(EncryptionType)
        check_is_string_and_not_empty(KeyId) or
        check_local_references(%INPUT_DOCUMENT, KeyId, "AWS::KMS::Key") or
        check_local_references(%INPUT_DOCUMENT, KeyId, "AWS::KMS::Alias")
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
        }
    }
}
<<Local Stack reference was invalid>>
}
}
}
}
}
}
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    %referenced_resource not empty
    %referenced_resource {
        Type == %referenced_resource_type
    }
}

CT.KINESIS.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
KMSKey:
    Type: AWS::KMS::Key
    Properties:
        PendingWindowInDays: 7
        KeyPolicy:
            Version: 2012-10-17
            Id: example-key-policy
            Statement:
                - Sid: Enable IAM User Permissions
                  Effect: Allow
                  Principal:
                    AWS:
                    Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
                  Action: kms:*
                  Resource: '***'
        KeySpec: SYMMETRIC_DEFAULT

Proactive controls
KinesisStream:
  Type: AWS::Kinesis::Stream
  Properties:
    RetentionPeriodHours: 168
    ShardCount: 3
    StreamEncryption:
      EncryptionType: KMS
      KeyId:
        Ref: KMSKey

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  KinesisStream:
    Type: AWS::Kinesis::Stream
    Properties:
      RetentionPeriodHours: 168
      ShardCount: 3

AWS Lambda controls

Topics

- [CT.LAMBDA.PR.2] Require AWS Lambda function policies to prohibit public access
- [CT.LAMBDA.PR.3] Require an AWS Lambda function to be in a customer-managed Amazon Virtual Private Cloud (VPC)
- [CT.LAMBDA.PR.4] Require an AWS Lambda layer permission to grant access to an AWS organization or specific AWS account
- [CT.LAMBDA.PR.5] Require an AWS Lambda function URL to use AWS IAM-based authentication
- [CT.LAMBDA.PR.6] Require an AWS Lambda function URL CORS policy to restrict access to specific origins
[CT.LAMBDA.PR.2] Require AWS Lambda function policies to prohibit public access

This control checks whether an AWS Lambda function resource-based policy prohibits public access.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Lambda::Permission
- **AWS CloudFormation guard rule:** [CT.LAMBDA.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.LAMBDA.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.LAMBDA.PR.2 example templates](#)

Explanation

The Lambda function should not be publicly accessible, because it may permit unintended access to your code stored in the function.

Remediation for rule failure

When setting `Principal` to *, provide one of `SourceAccount`, `SourceArn`, or `PrincipalOrgID`. When setting `Principal` to a service principal (for example, `s3.amazonaws.com`), provide one of `SourceAccount` or `SourceArn`.

The examples that follow show how to implement this remediation.

**AWS Lambda Function Policy - Example One**

AWS Lambda function policy configured with an AWS account ID principal. The example is shown in JSON and in YAML.

**JSON example**

```json
{
}
```
The examples that follow show how to implement this remediation.

**AWS Lambda Function Policy - Example Two**

AWS Lambda function policy configured with a wildcard principal and source account condition. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "LambdaPermission": {
        "Type": "AWS::Lambda::Permission",
        "Properties": {
            "Action": "lambda:InvokeFunction",
            "FunctionName": {
                "Ref": "LambdaFunction"
            },
            "Principal": {
                "Ref": "AWS::AccountId"
            }
        }
    }
}
```

**YAML example**

```yaml
LambdaPermission:
  Type: AWS::Lambda::Permission
  Properties:
    Action: lambda:InvokeFunction
    FunctionName: !Ref 'LambdaFunction'
    Principal: !Ref 'AWS::AccountId'
```

The examples that follow show how to implement this remediation.
YAML example

LambdaPermission:
  Type: AWS::Lambda::Permission
  Properties:
    Action: lambda:InvokeFunction
    FunctionName: !Ref 'LambdaFunction'
    Principal: '*'
    SourceAccount: !Ref 'AWS::AccountId'

The examples that follow show how to implement this remediation.

AWS Lambda Function Policy - Example Three

AWS Lambda function policy configured with a service principal and source ARN condition. The example is shown in JSON and in YAML.

JSON example

{
  "LambdaPermission": {
    "Type": "AWS::Lambda::Permission",
    "Properties": {
      "Action": "lambda:InvokeFunction",
      "FunctionName": {
        "Ref": "LambdaFunction"
      },
      "Principal": "s3.amazonaws.com",
      "SourceAccount": "!Ref 'AWS::AccountId'"
    }
  }
}
YAML example

LambdaPermission:
  Type: AWS::Lambda::Permission
  Properties:
    Action: lambda:InvokeFunction
    FunctionName: !Ref 'LambdaFunction'
    Principal: s3.amazonaws.com
    SourceArn: !GetAtt 'S3Bucket.Arn'

CT.LAMBDA.PR.2 rule specification

# #########################################################################
##       Rule Specification       ##
# #########################################################################
#
# Rule Identifier:
#   lambda_function_public_access_prohibited_check
##
# Description:
#   This control checks whether an AWS Lambda function resource-based policy prohibits public access.
#
# Reports on:
#   AWS::Lambda::Permission
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
### Rule Parameters:
None

### Scenarios:
#### Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any Lambda permission resources
Then: SKIP

#### Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a Lambda permission resource
And: 'FunctionUrlAuthType' has been provided with a value of 'NONE'
Then: FAIL

#### Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a Lambda permission resource
And: 'Principal' has been provided with a wildcard value ('*')
And: 'SourceAccount' has not been provided or provided with an empty string value
And: 'SourceArn' has not been provided or provided with an empty string value or non-valid local reference
And: 'PrincipalOrgID' has not been provided or provided with an empty string value
Then: FAIL

#### Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a Lambda permission resource
And: 'Principal' has been provided with value that does not match an AWS Account ID, AWS IAM ARN or wildcard value ('*')
And: 'SourceAccount' has not been provided or provided with an empty string value
And: 'SourceArn' has not been provided or provided with an empty string value or non-valid local reference
Then: FAIL

#### Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a Lambda permission resource

Proactive controls
# If: 'Principal' has been provided with an AWS Account ID or AWS IAM ARN value
# Then: PASS
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Lambda permission resource
# And: 'Principal' has been provided with a wildcard value ('**')
# And: At least one of 'SourceAccount', 'SourceArn' or 'PrincipalOrgID' have been
# provided with non-empty string
# Then: PASS
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Lambda permission resource
# And: 'Principal' has been provided with value that does not match an AWS
# Account ID or AWS IAM ARN
# And: At least one of 'SourceAccount', 'SourceArn' have been provided with non-
# empty string values (or a valid
# local reference for 'SourceArn')
# Then: PASS

# Constants
#
let LAMBDA_PERMISSION_TYPE = "AWS::Lambda::Permission"
let AWS_ACCOUNT_ID_PATTERN = /\d{12}/
let AWS_IAM_PRINCIPAL_PATTERN = /^arn:aws[a-z0-9\-]*:iam::\d{12}:.+/

let INPUT_DOCUMENT = this

# Assignments
#
let lambda_permissions = Resources.*[ Type == %LAMBDA_PERMISSION_TYPE ]

# Primary Rules
#
rule lambda_function_public_access_prohibited_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %lambda_permissions not empty
  {
    check(%lambda_permissions.Properties)
<<

[CT.LAMBDA.PR.2]: Require AWS Lambda function policies to prohibit public access

[FIX]: When setting 'Principal' to '*', provide one of 'SourceAccount', 'SourceArn', or 'PrincipalOrgID'. When setting 'Principal' to a service principal (for example, s3.amazonaws.com), provide one of 'SourceAccount' or 'SourceArn'.

rule lambda_function_public_access_prohibited_check when is_cfn_hook(%INPUT_DOCUMENT, %LAMBDA_PERMISSION_TYPE) {
    check(%INPUT_DOCUMENT.%LAMBDA_PERMISSION_TYPE.resourceProperties)
    
    [CT.LAMBDA.PR.2]: Require AWS Lambda function policies to prohibit public access

    [FIX]: When setting 'Principal' to '*', provide one of 'SourceAccount', 'SourceArn', or 'PrincipalOrgID'. When setting 'Principal' to a service principal (for example, s3.amazonaws.com), provide one of 'SourceAccount' or 'SourceArn'.

}>

#
# Parameterized Rules
#
	number rule check(lambda_permission) {

    %lambda_permission {
        # Scenario 2 and 5
        FunctionUrlAuthType not exists or
        FunctionUrlAuthType != "NONE"
    }

    %lambda_permission [Principal exists
        Principal == "*"
    ] {
        # Scenario 3 and 6
        SourceAccount exists or
        SourceArn exists or
        PrincipalOrgID exists

        check_is_string_and_not_empty(SourceAccount) or
        check_is_string_or_local_reference(SourceArn) or
        check_is_string_and_not_empty(PrincipalOrgID)
    }

Proactive controls
%lambda_permission [
  Principal exists
  Principal != ""
  Principal != %AWS_ACCOUNT_ID_PATTERN
  Principal != %AWS_IAM_PRINCIPAL_PATTERN
] {
  # Scenario 4 and 7
  SourceAccount exists or
  SourceArn exists

  check_is_string_and_not_empty(SourceAccount) or
  check_is_string_or_local_reference(SourceArn)
}

rule check_is_string_or_local_reference(value) {
  %value {
    check_is_string_and_not_empty(this) or
    check_local_references(%INPUT_DOCUMENT, this)
  }
}

rule check_local_references(doc, reference_properties) {
  %reference_properties {
    'Fn::GetAtt' {
      query_for_resource(%doc, this[0])
      <<Local Stack reference was invalid>>
    } or Ref {
      query_for_resource(%doc, this)
      <<Local Stack reference was invalid>>
    }
  }
}

rule query_for_resource(doc, resource_key) {
  let referenced_resource = %doc.Resources[ keys == %resource_key ]
  referenced_resource not empty
}

# Utility Rules
#
rule is_cfn_template(doc) {
CT.LAMBDA.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
LambdaFunctionRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          Service:
            - lambda.amazonaws.com
        Action:
          - sts:AssumeRole
    Path: /
Properties:
  - PolicyName: LambdaFunctionPolicy
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  LambdaFunctionRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Principal:

LambdaFunction:
  Type: AWS::Lambda::Function
  Properties:
    Role:
      Fn::GetAtt: LambdaFunctionRole.Arn
    Handler: index.handler
    Runtime: python3.9
    Code:
      ZipFile: "def handler(event, context):
          print("hello")"
    Description: TestS3EventFunction

LambdaPermission:
  Type: AWS::Lambda::Permission
  Properties:
    Action: lambda:InvokeFunction
    FunctionName:
      Ref: LambdaFunction
    Principal:
      Ref: AWS::AccountId
Service:
- lambda.amazonaws.com

Action:
- sts:AssumeRole

Path: /

Policies:
- PolicyName: LambdaFunctionPolicy
  PolicyDocument:
  Version: '2012-10-17'
  Statement:
  - Effect: Allow
    Action:
    - logs:CreateLogGroup
    - logs:CreateLogStream
    - logs:PutLogEvents
    Resource: '*'

LambdaFunction:
  Type: AWS::Lambda::Function
  Properties:
    Role:
      Fn::GetAtt: LambdaFunctionRole.Arn
    Handler: index.handler
    Runtime: python3.9
    Code:
      ZipFile: "def handler(event, context):
        print("hello")"
    Description: TestS3EventFunction

LambdaPermission:
  Type: AWS::Lambda::Permission
  Properties:
    Action: lambda:InvokeFunction
    FunctionName:
      Ref: LambdaFunction
    Principal: '*'

[CT.LAMBDA.PR.3] Require an AWS Lambda function to be in a customer-managed Amazon Virtual Private Cloud (VPC)

This control checks whether an AWS Lambda function has been configured with access to resources in a customer-managed Amazon Virtual Private Cloud (VPC).

- Control objective: Limit network access
• **Implementation**: AWS CloudFormation guard rule

• **Control behavior**: Proactive

• **Resource types**: AWS::Lambda::Function

• **AWS CloudFormation guard rule**: [CT.LAMBDA.PR.3 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.LAMBDA.PR.3 rule specification](#)

• For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.LAMBDA.PR.3 example templates](#)

**Explanation**

AWS Lambda functions can be linked to private subnets within a virtual private cloud (VPC) in your AWS account to connect to resources such as databases, cache instances, or internal services. Ensure that the subnets and security groups used allow access to the necessary resources.

**Usage considerations**

- This control does not evaluate the VPC subnet routing configuration to determine public reachability.

- This control does not support AWS Lambda@Edge Functions. Lambda@Edge does not support functions that are configured with access to resources inside your VPC.

- Lambda functions can't connect directly to a VPC with dedicated instance tenancy. To connect to resources in a dedicated VPC, peer it to a second VPC with default tenancy.

**Remediation for rule failure**

In VpcConfig, provide the SubnetIds property with one or more Subnet IDs, and provide the SecurityGroupIds property with one or more Security Group IDs.

The examples that follow show how to implement this remediation.
AWS Lambda Function - Example

AWS Lambda function configured to access resources in a VPC. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "LambdaFunction": {
      "Type": "AWS::Lambda::Function",
      "Properties": {
         "Role": {
            "Fn::GetAtt": "LambdaFunctionRole.Arn"
         },
         "Handler": "index.handler",
         "Code": {
            "ZipFile": "def handler(event, context):
                             print("sample function")"
         },
         "Runtime": "python3.9",
         "VpcConfig": {
            "SubnetIds": [
               {
                  "Fn::GetAtt": [
                     "SubnetOne",
                     "SubnetId"
                  ]
               },
               {
                  "Fn::GetAtt": [
                     "SubnetTwo",
                     "SubnetId"
                  ]
               }
            ],
            "SecurityGroupIds": [
               {
                  "Fn::GetAtt": [
                     "SecurityGroup",
                     "GroupId"
                  ]
               }
            ]
         }
      }
   }
}
```
YAML example

LambdaFunction:
  Type: AWS::Lambda::Function
  Properties:
    Role: !GetAtt 'LambdaFunctionRole.Arn'
    Handler: index.handler
    Code:
      ZipFile: "def handler(event, context):
          print("sample function")\n"
    Runtime: python3.9
    VpcConfig:
      SubnetIds:
        - !GetAtt 'SubnetOne.SubnetId'
        - !GetAtt 'SubnetTwo.SubnetId'
      SecurityGroupIds:
        - !GetAtt 'SecurityGroup.GroupId'

CT.LAMBDA.PR.3 rule specification

# #*******************************
# #   Rule Specification     
# #*******************************
#
# # Rule Identifier:        
# #    lambda_inside_vpc_check
#
# # Description:           
# #   This control checks whether an AWS Lambda function has been configured with access
# #   to resources in a customer-managed Amazon Virtual Private Cloud (VPC).
# # # Reports on:            
# #    AWS::Lambda::Function
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#            And: The input document does not contain any Lambda function resources
#            Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#            And: The input document contains a Lambda function resource
#            And: 'VpcConfig' has not been provided
#            Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#            And: The input document contains a Lambda function resource
#            And: 'VpcConfig' has been provided
#            And: 'SubnetIds' in 'VpcConfig' has been provided as a non-empty list that
#                  contains non-empty strings or valid
#                        local references
#            And: 'SecurityGroupIds' in 'VpcConfig' has not been been provided or has been
#                  provided as an empty list
#            Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#            And: The input document contains a Lambda function resource
#            And: 'VpcConfig' has been provided
#            And: 'SecurityGroupIds' in 'VpcConfig' has been provided as a non-empty list
#                  that contains non-empty strings
#                        or valid local references
#            And: 'SubnetIds' in 'VpcConfig' has not been been provided or has been provided
#                  as an empty list
#            Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#            And: The input document contains a Lambda function resource
And: 'VpcConfig' has been provided
And: 'SecurityGroupIds' in 'VpcConfig' has been provided as a non-empty list that contains non-empty strings or valid local references
And: 'SubnetIds' in 'VpcConfig' has been provided as a non-empty list that contains non-empty strings or valid local references
Then: PASS

# Constants
#
let LAMBDA_FUNCTION_TYPE = "AWS::Lambda::Function"
let INPUT_DOCUMENT = this

# Assignments
#
let lambda_functions = Resources.^[ Type == %LAMBDA_FUNCTION_TYPE ]

# Primary Rules
#
rule lambda_inside_vpc_check when is_cfn_template(%INPUT_DOCUMENT)
%lambda_functions not empty {
    check(%lambda_functions.Properties)
    %lambda_functions not empty {
        <<
            [CT.LAMBDA.PR.3]: Require an AWS Lambda function to be in a customer-managed Amazon Virtual Private Cloud (VPC)
            [FIX]: In 'VpcConfig', provide the 'SubnetIds' property with one or more Subnet IDs, and provide the 'SecurityGroupIds' property with one or more Security Group IDs.
        >>
    }
}

rule lambda_inside_vpc_check when is_cfn_hook(%INPUT_DOCUMENT, %LAMBDA_FUNCTION_TYPE) {
    check(%INPUT_DOCUMENT.%LAMBDA_FUNCTION_TYPE.resourceProperties)
    <<
        [CT.LAMBDA.PR.3]: Require an AWS Lambda function to be in a customer-managed Amazon Virtual Private Cloud (VPC)
        [FIX]: In 'VpcConfig', provide the 'SubnetIds' property with one or more Subnet IDs, and provide the 'SecurityGroupIds' property with one or more Security Group IDs.
    >>
}
# Parameterized Rules

rule check(lambda_function) {
  %lambda_function {
    # Scenario 2
    VpcConfig exists
    VpcConfig is_struct

    VpcConfig {
      # Scenario 3 and 5
      SubnetIds exists
      SubnetIds is_list
      SubnetIds not empty
      SubnetIds[*] {
        check_is_string_and_not_empty(this) or
        check_local_references(%INPUT_DOCUMENT, this, "AWS::EC2::Subnet")
      }
      # Scenario 4 and 5
      SecurityGroupIds exists
      SecurityGroupIds is_list
      SecurityGroupIds not empty
      SecurityGroupIds[*] {
        check_is_string_and_not_empty(this) or
        check_local_references(%INPUT_DOCUMENT, this, "AWS::EC2::SecurityGroup")
      }
    }
  }
}

# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
rule check_is_string_and_not_empty(value) {
%value {
  this is_string
  this != /\A\s*\z/
}
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
%reference_properties {
  'Fn::GetAtt' {
    query_for_resource(%doc, this[0], %referenced_resource_type)
    <<Local Stack reference was invalid>>
  } or Ref {
    query_for_resource(%doc, this, %referenced_resource_type)
    <<Local Stack reference was invalid>>
  }
}
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
  let referenced_resource = %doc.Resources[ keys == %resource_key ]
  %referenced_resource not empty
  %referenced_resource {
    Type == %referenced_resource_type
  }
}

CT.LAMBDA.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsSupport: 'true'
EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
      - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
      - Fn::GetAZs: ''

SecurityGroup1:
  Type: AWS::EC2::SecurityGroup
  Properties:
    VpcId:
      Ref: VPC
    GroupDescription:
      Fn::Sub: ${AWS::StackName}-example

LambdaFunctionRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service:
              - lambda.amazonaws.com
          Action:
            - sts:AssumeRole
          Path: /
        Policies:
          - PolicyName: LambdaFunctionPolicy
            PolicyDocument:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  LambdaFunctionRole:
Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          Service:
            - lambda.amazonaws.com
        Action:
          - sts:AssumeRole
    Path: /
  Policies:
    - PolicyName: LambdaFunctionPolicy
      PolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Action:
              - logs:CreateLogGroup
              - logs:CreateLogStream
              - logs:PutLogEvents
              - ec2:CreateNetworkInterface
              - ec2:DescribeNetworkInterfaces
              - ec2:DeleteNetworkInterface
            Resource: '*'

LambdaFunction:
  Type: AWS::Lambda::Function
  Properties:
    Role:
      Fn::GetAtt: LambdaFunctionRole.Arn
    Handler: index.handler
    Code:
      ZipFile: |
        def handler(event, context):
          print("example")
    Runtime: python3.9
**[CT.LAMBDA.PR.4] Require an AWS Lambda layer permission to grant access to an AWS organization or specific AWS account**

This control checks whether an AWS Lambda layer permission has been configured to grant access to an AWS organization or to a specific AWS account only, by ensuring that public access from all AWS accounts has not been granted to a layer.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Lambda::LayerVersionPermission
- **AWS CloudFormation guard rule:** [CT.LAMBDA.PR.4 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.LAMBDA.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.LAMBDA.PR.4 example templates](#)

**Explanation**

By default, a layer that you create is **private** to your AWS account. However, you can share the layer with other accounts or make it public, optionally.

A **public** layer may allow unintended access to your source code and applications. A public Lambda layer can expose valuable information about your account, resources, and internal processes.

**Remediation for rule failure**

Set the `OrganizationId` parameter to the ID of an AWS organization, or set the `Principal` parameter to an AWS account ID.

The examples that follow show how to implement this remediation.

**AWS Lambda layer permission - Example one**

An AWS Lambda version permission URL configured to grant layer usage permission to all accounts in an organization. The example is shown in JSON and in YAML.
JSON example

```
{
    "LayerVersionPermission": {
        "Type": "AWS::Lambda::LayerVersionPermission",
        "Properties": {
            "Action": "lambda:GetLayerVersion",
            "LayerVersionArn": {
                "Ref": "LayerVersion"
            },
            "OrganizationId": "o-abc123defg"
        }
    }
}
```

YAML example

```
LayerVersionPermission:
    Type: AWS::Lambda::LayerVersionPermission
    Properties:
        Action: lambda:GetLayerVersion
        LayerVersionArn: !Ref 'LayerVersion'
        OrganizationId: o-abc123defg
```

The examples that follow show how to implement this remediation.

**AWS Lambda layer permission - Example two**

An AWS Lambda version permission URL configured to grant layer usage permission for an AWS account. The example is shown in JSON and in YAML.

JSON example

```
{
    "LayerVersionPermission": {
        "Type": "AWS::Lambda::LayerVersionPermission",
        "Properties": {
```

Proactive controls
"Action": "lambda:GetLayerVersion",
"LayerVersionArn": {
    "Ref": "LayerVersion"
},
"Principal": "123456789012"
}
}

**YAML example**

LayerVersionPermission:
  Type: AWS::Lambda::LayerVersionPermission
  Properties:
    Action: lambda:GetLayerVersion
    LayerVersionArn: !Ref 'LayerVersion'
    Principal: '123456789012'

**CT.LAMBDA.PR.4 rule specification**

# ###################################################################
##       Rule Specification        ##
# ###################################################################
#
# Rule Identifier:
#   lambda_layer_public_access_prohibited_check
#
# Description:
#   This control checks whether an AWS Lambda layer permission has been configured to
#   grant access to an AWS organization or to a specific AWS account only, by ensuring
#   that public access from all AWS accounts has not been granted to a layer.
#
# Reports on:
#   AWS::Lambda::LayerVersionPermission
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Lambda layer version permission resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Lambda layer version permission resource
#     And: 'OrganizationId' has not been provided
#     And: 'Principal' has been provided and set to '*'
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Lambda layer version permission resource
#     And: 'OrganizationId' has not been provided
#     And: 'Principal' has been provided and set to a non-empty string value other than '*'
#     Then: PASS
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Lambda layer version permission resource
#     And: 'OrganizationId' has been provided as a non-empty string
#     Then: PASS

#
# Constants
#
let LAMBDA_LAYER_PERMISSION_TYPE = "AWS::Lambda::LayerVersionPermission"
let INPUT_DOCUMENT = this

#
# Assignments
#
let lambda_layer_permissions = Resources.*[ Type == %LAMBDA_LAYER_PERMISSION_TYPE ]

# Primary Rules

rule lambda_layer_public_access_prohibited_check when is_cfn_template(%INPUT_DOCUMENT)
%lambda_layer_permissions not empty {
    check(%lambda_layer_permissions.Properties)
    <<
    [CT.LAMBDA.PR.4]: Require an AWS Lambda layer permission to grant access to an
    AWS organization or specific AWS account
    [FIX]: Set the 'OrganizationId' parameter to the ID of an AWS organization, or
    set the 'Principal' parameter to an AWS account ID.
    >>
}

rule lambda_layer_public_access_prohibited_check when is_cfn_hook(%INPUT_DOCUMENT, %LAMBDA_LAYER_PERMISSION_TYPE) {
    check(%INPUT_DOCUMENT.%LAMBDA_LAYER_PERMISSION_TYPE.resourceProperties)
    <<
    [CT.LAMBDA.PR.4]: Require an AWS Lambda layer permission to grant access to an
    AWS organization or specific AWS account
    [FIX]: Set the 'OrganizationId' parameter to the ID of an AWS organization, or
    set the 'Principal' parameter to an AWS account ID.
    >>
}

# Parameterized Rules

rule check(lambda_layer_permission) {
    %lambda_layer_permission [
        OrganizationId not exists
    ] {
        # Scenarios 2 and 3
        Principal exists
        check_is_string_and_not_empty(Principal)
        Principal != "*"
    }
    %lambda_layer_permission [
        OrganizationId exists
    ] {
        # Scenario 4
        check_is_string_and_not_empty(OrganizationId)
    }
}
CT.LAMBDA.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
LayerVersion:
  Type: AWS::Lambda::LayerVersion
  Properties:
    CompatibleRuntimes:
      - python3.9
    Content:
      S3Bucket: example-layer-bucket
      S3Key: layer.zip
      Description: Example layer
      LayerName: example-layer
      LicenseInfo: MIT
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
LayerVersion:
  Type: AWS::Lambda::LayerVersion
  Properties:
    CompatibleRuntimes:
    - python3.9
    Content:
      S3Bucket: example-layer-bucket
      S3Key: layer.zip
    Description: Example layer
    LayerName: example-layer
    LicenseInfo: MIT
LayerVersionPermission:
  Type: AWS::Lambda::LayerVersionPermission
  Properties:
    Action: lambda:GetLayerVersion
    LayerVersionArn:
      Ref: LayerVersion
    OrganizationId: o-abc123defg
    Principal: "*"

[CT.LAMBDA.PR.5] Require an AWS Lambda function URL to use AWS IAM-based authentication

This control checks whether an AWS Lambda function URL is configured to use authentication that's based on IAM.

- **Control objective:** Enforce least privilege
Implementation: AWS CloudFormation guard rule

Control behavior: Proactive

Resource types: AWS::Lambda::Url

AWS CloudFormation guard rule: CT.LAMBDA.PR.5 rule specification

Details and examples

For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.LAMBDA.PR.5 rule specification

For examples of PASS and FAIL CloudFormation templates related to this control, see: CT.LAMBDA.PR.5 example templates

Explanation

You can control access to a Lambda function URL using the AuthType parameter, combined with resource-based policies that are attached to your specific function. The configuration of these two components determines who can invoke or perform other administrative actions on your function URL.

The AuthType parameter determines how Lambda authenticates or authorizes requests to your Lambda function URL (endpoint). Setting AuthType to NONE means that Lambda does not perform any authentication before it invokes your function. However, your function's resource-based policy is always in effect, and the policy must grant public access before your Lambda function URL (endpoint) can receive requests.

Remediation for rule failure

Set the AuthType parameter to AWS_IAM

The examples that follow show how to implement this remediation.

AWS Lambda function URL - Example

An AWS Lambda function URL (endpoint) configured with AWS IAM-based authentication. The example is shown in JSON and in YAML.

JSON example
YAML example

FunctionUrl:
  Type: AWS::Lambda::Url
  Properties:
    TargetFunctionArn: !GetAtt 'LambdaFunction.Arn'
    AuthType: AWS_IAM

CT.LAMBDA.PR.5 rule specification

# #####################################################################
##       Rule Specification     ##
#######################################################################
#
# Rule Identifier:
#   lambda_function_url_auth_check
#
# Description:
#   This control checks whether an AWS Lambda function URL is configured to use
#   authentication that’s based on AWS IAM.
#
# Reports on:

Proactive controls  1586
# AWS::Lambda::Url

# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any Lambda function URL resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Lambda function URL resource
# And: 'AuthType' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Lambda function URL resource
# And: 'AuthType' been provided and set to a value other than 'AWS_IAM'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Lambda function URL resource
# And: 'AuthType' been provided and set to 'AWS_IAM'
# Then: PASS

# Constants

let LAMBDA_FUNCTION_URL_TYPE = "AWS::Lambda::Url"
let AUTHORIZED_AUTHENTICATION_TYPES = ["AWS_IAM"]
let INPUT_DOCUMENT = this

# Assignments

let lambda_function_urls = Resources.*[ Type == %LAMBDA_FUNCTION_URL_TYPE ]
# Primary Rules

rule lambda_function_url_auth_check when is_cfn_template(%INPUT_DOCUMENT)

%lambda_function_urls not empty {
    check(%lambda_function_urls.Properties)
    <=
    [CT.LAMBDA.PR.5]: Require an AWS Lambda function URL to use AWS IAM-based authentication
    [FIX]: Set the 'AuthType' parameter to 'AWS_IAM'
    >
}

rule lambda_function_url_auth_check when is_cfn_hook(%INPUT_DOCUMENT, %LAMBDA_FUNCTION_URL_TYPE) {
    check(%INPUT_DOCUMENT.%LAMBDA_FUNCTION_URL_TYPE.resourceProperties)
    <=
    [CT.LAMBDA.PR.5]: Require an AWS Lambda function URL to use AWS IAM-based authentication
    [FIX]: Set the 'AuthType' parameter to 'AWS_IAM'
    >
}

# Parameterized Rules

# check(lambda_function_url) {
%lambda_function_url {
    # Scenario 2
    AuthType exists
    # Scenarios 3 and 4
    AuthType in %AUTHORIZED_AUTHENTICATION_TYPES
}
}

# Utility Rules

rule is_cfn_template(doc) {
%doc {
    AWSTemplateFormatVersion exists or Resources exists
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.LAMBDA.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
LambdaFunctionRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service:
              - lambda.amazonaws.com
          Action:
            - sts:AssumeRole
          Path: /
        Policies:
          - PolicyName: LambdaFunctionPolicy
            PolicyDocument:
              Version: '2012-10-17'
              Statement:
                - Effect: Allow
                  Action:
                    - logs:CreateLogGroup
                    - logs:CreateLogStream
                    - logs:PutLogEvents
                  Resource: '*'
LambdaFunction:
  Type: AWS::Lambda::Function
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
LambdaFunctionRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          Service: lambda.amazonaws.com
        Action:
          - sts:AssumeRole
    Path: /
  Policies:
    - PolicyName: LambdaFunctionPolicy
      PolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Action:
- logs:CreateLogGroup
- logs:CreateLogStream
- logs:PutLogEvents
Resource: '*'

LambdaFunction:
  Type: AWS::Lambda::Function
  Properties:
    Role:
      Fn::GetAtt: LambdaFunctionRole.Arn
    Handler: index.handler
    Code:
      ZipFile: "def handler(event, context):
        print("example")
      
      Runtime: python3.9
  FunctionUrl:
    Type: AWS::Lambda::Url
    Properties:
      TargetFunctionArn:
        Fn::GetAtt:
        - LambdaFunction
        - Arn
      AuthType: NONE

[CT.LAMBDA.PR.6] Require an AWS Lambda function URL CORS policy to restrict access to specific origins

This control checks whether an AWS Lambda function URL is configured with a cross-origin resource sharing (CORS) policy that does not grant access to all origins.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Lambda::Url
- **AWS CloudFormation guard rule:** [CT.LAMBDA.PR.6 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.LAMBDA.PR.6 rule specification](#)
For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.LAMBDA.PR.6 example templates](#).

**Explanation**

Cross-Origin Resource Sharing (CORS) is a mechanism based on an HTTP-header, which allows a server to indicate any origins (domain, scheme, or port) other than its own, from which a browser should permit loading resources.

If you set a wildcard origin (*) in a CORS policy, you allow code running in browsers from any origin to gain access to your function URL.

**Remediation for rule failure**

In the `Cors` parameter, ensure that the value of `AllowOrigins` does not contain wildcard origins (*, `http://*` and `https://*`).

The examples that follow show how to implement this remediation.

**AWS Lambda Function URL - Example**

AWS Lambda function URL configured with a cross-origin resource sharing (CORS) policy that restricts access to a specific origin. The example is shown in JSON and in YAML.

**JSON example**

```
{
    "FunctionUrl": {
        "Type": "AWS::Lambda::Url",
        "Properties": {
            "TargetFunctionArn": {
                "Fn::GetAtt": [
                    "LambdaFunction",
                    "Arn"
                ]
            },
            "AuthType": "AWS_IAM",
            "Cors": {
                "AllowOrigins": [
                    "https://example.com"
                ]
            }
        }
    }
}
```
YAML example

```yaml
FunctionUrl:
  Type: AWS::Lambda::Url
  Properties:
    TargetFunctionArn: !GetAtt 'LambdaFunction.Arn'
    AuthType: AWS_IAM
    Cors:
      AllowOrigins:
        - https://example.com
```

CT.LAMBDA.PR.6 rule specification

```bash
# ####################################################################
###       Rule Specification        ###
####################################################################
#
# Rule Identifier:
#   lambda_function_url_cors_check
#
# Description:
#   This control checks whether an AWS Lambda function URL is configured with a cross-origin resource sharing (CORS) policy that does not grant access to all origins.
#
# Reports on:
#   AWS::Lambda::Url
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation Hook
#
# Rule Parameters:
#   None
#
# Scenarios:
```
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any Lambda function URL resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Lambda function URL resource
# And: 'AllowOrigins' in 'Cors' has not been provided or has been provided as an empty list
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Lambda function URL resource
# And: 'Cors' has been provided
# And: 'AllowOrigins' in 'Cors' has been provided as a non-empty list
# And: 'AllowOrigins' has an entry that contains a wildcard value '*'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Lambda function URL resource
# And: 'Cors' has been provided
# And: 'AllowOrigins' in 'Cors' has been provided as a non-empty list
# And: No entries in 'AllowOrigins' contain a wildcard value '*'
# Then: PASS

# Constants
#
let LAMBDA_FUNCTION_URL_TYPE = "AWS::Lambda::Url"
let INPUT_DOCUMENT = this

# Assignments
#
let lambda_function_urls = Resources.[ Type == %LAMBDA_FUNCTION_URL_TYPE ]

# Primary Rules
#
rule lambda_function_url_cors_check when is_cfn_template(%INPUT_DOCUMENT)
%lambda_function_urls not empty {
  check(%lambda_function_urls.Properties)
  <<
  [CT.LAMBDA.PR.6]: Require an AWS Lambda function URL CORS policy to restrict access to specific origins
  [FIX]: In the 'Cors' parameter, ensure that the value of 'AllowOrigins' does not contain wildcard origins ('*', 'http://*' and 'https://*')
  >>
}

rule lambda_function_url_cors_check when is_cfn_hook(%INPUT_DOCUMENT, %LAMBDA_FUNCTION_URL_TYPE) {
  check(%INPUT_DOCUMENT.%LAMBDA_FUNCTION_URL_TYPE.resourceProperties)
  <<
  [CT.LAMBDA.PR.6]: Require an AWS Lambda function URL CORS policy to restrict access to specific origins
  [FIX]: In the 'Cors' parameter, ensure that the value of 'AllowOrigins' does not contain wildcard origins ('*', 'http://*' and 'https://*')
  >>
}

#
# Parameterized Rules
#
rule check(lambda_function_url) {
  %lambda_function_url[
    # Scenario 2
    filter_cors_origins(this)
  ] {
    Cors {
      # Scenarios 3 and 4
      AllowOrigins[*] != //*/ 
    }
  }
}

rule filter_cors_origins(lambda_function_url) {
  %lambda_function_url {
    Cors exists
    Cors is_struct
    Cors {
      AllowOrigins exists
      AllowOrigins is_list
      AllowOrigins not empty
    }
  }
}
# Utility Rules

rule is_cfn_template(doc) {
%doc {
   AWSTemplateFormatVersion exists or
   Resources exists
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
   %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.LAMBDA.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
LambdaFunctionRole:
   Type: AWS::IAM::Role
   Properties:
      AssumeRolePolicyDocument:
         Version: '2012-10-17'
         Statement:
            - Effect: Allow
              Principal:
                Service:
                  - lambda.amazonaws.com
              Action:
                - sts:AssumeRole
              Path: /
Policies:
- PolicyName: LambdaFunctionPolicy
  PolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Action:
          - logs:CreateLogGroup
          - logs:CreateLogStream
          - logs:PutLogEvents
        Resource: '*'

LambdaFunction:
  Type: AWS::Lambda::Function
  Properties:
    Role:
      Fn::GetAtt: LambdaFunctionRole.Arn
    Handler: index.handler
    Code:
      ZipFile: "def handler(event, context):
        print("example")
     "
    Runtime: python3.9

FunctionUrl:
  Type: AWS::Lambda::Url
  Properties:
    TargetFunctionArn:
      Fn::GetAtt:
        - LambdaFunction
        - Arn
    AuthType: AWS_IAM
    Cors:
      AllowOrigins:
        - https://example.com

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
LambdaFunctionRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
Version: '2012-10-17'
Statement:
- Effect: Allow
  Principal:
    Service:
    - lambda.amazonaws.com
  Action:
    - sts:AssumeRole
Path: /
Policies:
- PolicyName: LambdaFunctionPolicy
  PolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Action:
          - logs:CreateLogGroup
          - logs:CreateLogStream
          - logs:PutLogEvents
        Resource: '*'
LambdaFunction:
  Type: AWS::Lambda::Function
  Properties:
    Role:
      Fn::GetAtt: LambdaFunctionRole.Arn
    Handler: index.handler
    Code:
      ZipFile: "def handler(event, context):
          print("example")"
    Runtime: python3.9
FunctionUrl:
  Type: AWS::Lambda::Url
  Properties:
    TargetFunctionArn:
      Fn::GetAtt:
      - LambdaFunction
      - Arn
    AuthType: AWS_IAM
    Cors:
      AllowOrigins:
      - '*'
Amazon MQ controls

Topics

- [CT.MQ.PR.1] Require an Amazon MQ ActiveMQ broker to use use active/standby deployment mode for high availability
- [CT.MQ.PR.2] Require an Amazon MQ Rabbit MQ broker to use Multi-AZ cluster mode for high availability

[CT.MQ.PR.1] Require an Amazon MQ ActiveMQ broker to use use active/standby deployment mode for high availability

This control checks whether an Amazon MQ ActiveMQ broker is configured in an active/standby deployment mode.

- **Control objective:** Improve resiliency, Improve availability
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::AmazonMQ::Broker
- **AWS CloudFormation guard rule:** [CT.MQ.PR.1 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.MQ.PR.1 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.MQ.PR.1 example templates](#)

Explanation

Amazon MQ ActiveMQ active/standby deployment mode helps you achieve high availability for your Amazon MQ brokers across a single region. The Amazon MQ active/standby deployment mode includes two broker instances, which are configured in a redundant pair across different availability zones.
Usage considerations

- This control applies only to Amazon MQ brokers with an engine type of ACTIVEMQ.

Remediation for rule failure

For Amazon MQ brokers with an engine type of ACTIVEMQ, set the DeploymentMode property to ACTIVE_STANDBY_MULTI_AZ.

The examples that follow show how to implement this remediation.

Amazon MQ ActiveMQ Broker - Example

An Amazon MQ ActiveMQ broker configured in active/standby deployment mode. The example is shown in JSON and in YAML.

JSON example

```json
{
   "MQBroker": {
      "Type": "AWS::AmazonMQ::Broker",
      "Properties": {
         "AutoMinorVersionUpgrade": true,
         "BrokerName": "sample-broker",
         "EngineVersion": "5.17.2",
         "HostInstanceType": "mq.m5.large",
         "PubliclyAccessible": false,
         "Users": [
            {
               "ConsoleAccess": true,
               "Username": {
                  "Fn::Sub": "{{resolve:secretsmanager: ${MQBrokerSecret}::username}}"
               },
               "Password": {
                  "Fn::Sub": "{{resolve:secretsmanager: ${MQBrokerSecret}::password}}"
               }
            }
         ],
         "EngineType": "ACTIVEMQ",
```
"DeploymentMode": "ACTIVE_STANDBY_MULTI_AZ"

YAML example

MQBroker:
  Type: AWS::AmazonMQ::Broker
  Properties:
    AutoMinorVersionUpgrade: true
    BrokerName: sample-broker
    EngineVersion: 5.17.2
    HostInstanceType: mq.m5.large
    PubliclyAccessible: false
    Users:
      - ConsoleAccess: true
        Username: !Sub '{{resolve:secretsmanager:${MQBrokerSecret}::username}}'
        Password: !Sub '{{resolve:secretsmanager:${MQBrokerSecret}::password}}'
    EngineType: ACTIVEMQ
    DeploymentMode: ACTIVE_STANDBY_MULTI_AZ

CT.MQ.PR.1 rule specification

# ###################################################################
##       Rule Specification        ##
# ###################################################################
#
# Rule Identifier:
# mq_active_deployment_mode_check
#
# Description:
# This control checks whether an Amazon MQ ActiveMQ broker is configured in an
# active/standby deployment mode.
#
# Reports on:
# AWS::AmazonMQ::Broker
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Amazon MQ broker resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon MQ broker resource
#     And: 'EngineType' has been provided and is equal to a value other than
#          'ACTIVEMQ'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon MQ broker resource
#     And: 'EngineType' has been provided and set to 'ACTIVEMQ'
#     And: 'DeploymentMode' has not been provided or has been provided and set to a
#          value other
#          than 'ACTIVE_STANDBY_MULTI_AZ'
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon MQ broker resource
#     And: 'EngineType' has been provided and set to 'ACTIVEMQ'
#     And: 'DeploymentMode' has been provided and set to 'ACTIVE_STANDBY_MULTI_AZ'
#     Then: PASS
#
# Constants
#
let MQ_BROKER_TYPE = "AWS::AmazonMQ::Broker"
let ENGINES_WITH_CLUSTER_DEPLOYMENT_SUPPORT = ["ACTIVEMQ"]
let ALLOWED_DEPLOYMENT_MODES = ["ACTIVE_STANDBY_MULTI_AZ"]
let INPUT_DOCUMENT = this
# Assignments

let mq_brokers = Resources.*[ Type == %MQ_BROKER_TYPE ]

# Primary Rules

rule mq_active_deployment_mode_check when is_cfn_template(%INPUT_DOCUMENT)
    %mq_brokers not empty {
        check(%mq_brokers.Properties)
        <<
        [CT.MQ.PR.1]: Require an Amazon MQ ActiveMQ broker to use use active/standby deployment mode for high availability
        [FIX]: For Amazon MQ brokers with an engine type of ACTIVEMQ, set the DeploymentMode property to ACTIVE_STANDBY_MULTI_AZ.
        >>
    }

rule mq_active_deployment_mode_check when is_cfn_hook(%INPUT_DOCUMENT, %MQ_BROKER_TYPE) {
    check(%INPUT_DOCUMENT.%MQ_BROKER_TYPE.resourceProperties)
    <<
    [CT.MQ.PR.1]: Require an Amazon MQ ActiveMQ broker to use use active/standby deployment mode for high availability
    [FIX]: For Amazon MQ brokers with an engine type of ACTIVEMQ, set the DeploymentMode property to ACTIVE_STANDBY_MULTI_AZ.
    >>
}

# Parameterized Rules

rule check(mq_broker) {
    %mq_broker [ 
        # Scenario 2
        filter_engine(this) 
    ] {
        # Scenarios 3 and 4
        DeploymentMode exists
        DeploymentMode in %ALLOWED_DEPLOYMENT_MODES
    }
}
rule filter_engine(mq_broker) {
  %mq_broker {
    EngineType exists
    EngineType in %ENGINES_WITH_CLUSTER_DEPLOYMENT_SUPPORT
  }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.MQ.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
MQBrokerSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: MQ broker secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemqusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: ',;='
MQBroker:
  Type: AWS::AmazonMQ::Broker
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
MQBrokerSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: MQ broker secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemqusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: ',=:'
MQBroker:
  Type: AWS::AmazonMQ::Broker
  Properties:
    AutoMinorVersionUpgrade: true
    BrokerName:
      Ref: AWS::StackName
    EngineVersion: 5.17.2
    HostInstanceType: mq.m5.large
    PubliclyAccessible: false
    Users:
      - ConsoleAccess: true
[CT.MQ.PR.2] Require an Amazon MQ Rabbit MQ broker to use Multi-AZ cluster mode for high availability

This control checks whether an Amazon MQ RabbitMQ broker is configured in a cluster deployment mode, to allow for high availability.

- **Control objective**: Improve resiliency, Improve availability
- **Implementation**: AWS CloudFormation guard rule
- **Control behavior**: Proactive
- **Resource types**: AWS::AmazonMQ::Broker
- **AWS CloudFormation guard rule**: [CT.MQ.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.MQ.PR.2 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.MQ.PR.2 example templates](#)

Explanation

Amazon MQ cluster deployments for RabbitMQ help you achieve high availability for your Amazon MQ brokers across a single region. RabbitMQ clusters include three broker instances, which are configured in a cluster across different availability zones.

⚠️ **Usage considerations**

- This control applies only to Amazon MQ brokers with an engine type of RABBITMQ.
Remediation for rule failure

For Amazon MQ brokers with an engine type of RABBITMQ, set the DeploymentMode property to CLUSTER_MULTI_AZ.

The examples that follow show how to implement this remediation.

Amazon MQ RabbitMQ Broker - Example

An Amazon MQ RabbitMQ broker configured in a cluster deployment mode. The example is shown in JSON and in YAML.

JSON example

```json
{
    "MQBroker": {
        "Type": "AWS::AmazonMQ::Broker",
        "Properties": {
            "Auto Minor Version Upgrade": true,
            "BrokerName": "sample-mq-broker",
            "EngineVersion": "3.10.10",
            "Host Instance Type": "mq.m5.large",
            "Publicly Accessible": false,
            "Users": [
                {
                    "Console Access": true,
                    "Username": {
                        "Fn::Sub": "{{resolve:secretsmanager:
${MQBrokerSecret}::username}}"
                    },
                    "Password": {
                        "Fn::Sub": "{{resolve:secretsmanager:
${MQBrokerSecret}::password}}"
                    }
                }
            ],
            "Engine Type": "RABBITMQ",
            "Deployment Mode": "CLUSTER_MULTI_AZ"
        }
    }
}
```
YAML example

```yaml
MQBroker:
  Type: AWS::AmazonMQ::Broker
  Properties:
    AutoMinorVersionUpgrade: true
    BrokerName: sample-mq-broker
    EngineVersion: 3.10.10
    HostInstanceType: mq.m5.large
    PubliclyAccessible: false
    Users:
      - ConsoleAccess: true
        Username: !Sub '{{resolve:secretsmanager:${MQBrokerSecret}::username}}'
        Password: !Sub '{{resolve:secretsmanager:${MQBrokerSecret}::password}}'
    EngineType: RABBITMQ
    DeploymentMode: CLUSTER_MULTI_AZ
```

CT.MQ.PR.2 rule specification

```plaintext
# ######################################################################
# # Rule Specification             #
# ######################################################################
#
# Rule Identifier:
#   mq_rabbit_deployment_mode_check
#
# Description:
#   This control checks whether an Amazon MQ RabbitMQ broker is configured in a cluster deployment mode, to allow for high availability.
#
# Reports on:
#   AWS::AmazonMQ::Broker
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
```
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any Amazon MQ broker resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon MQ broker resource
# And: 'EngineType' been provided and is equal to a value other than 'RABBITMQ'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon MQ broker resource
# And: 'EngineType' been provided and is equal to 'RABBITMQ'
# And: 'DeploymentMode' has not been provided or has been provided and set to a
# value other
# than 'CLUSTER_MULTI_AZ'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon MQ broker resource
# And: 'EngineType' been provided and is equal to 'RABBITMQ'
# And: 'DeploymentMode' has been provided and set to 'CLUSTER_MULTI_AZ'
# Then: PASS
#
# # Constants
#
let MQ_BROKER_TYPE = "AWS::AmazonMQ::Broker"
let ENGINES_WITH_CLUSTER_DEPLOYMENT_SUPPORT = ["RABBITMQ"]
let ALLOWED_DEPLOYMENT_MODES = ["CLUSTER_MULTI_AZ"]
let INPUT_DOCUMENT = this
#
# # Assignments
#
let mq_brokers = Resources.*[ Type == %MQ_BROKER_TYPE ]

# # Primary Rules

# rule mq_rabbit_deployment_mode_check when is_cfn_template(%INPUT_DOCUMENT) and %mq_brokers not empty {
    check(%mq_brokers.Properties)
    <<
    [CT.MQ.PR.2]: Require an Amazon MQ Rabbit MQ broker to use Multi-AZ cluster mode for high availability
    [FIX]: For Amazon MQ brokers with an engine type of RABBITMQ, set the DeploymentMode property to CLUSTER_MULTI_AZ.
    >>
}

rule mq_rabbit_deployment_mode_check when is_cfn_hook(%INPUT_DOCUMENT, %MQ_BROKER_TYPE) {
    check(%INPUT_DOCUMENT.%MQ_BROKER_TYPE.resourceProperties)
    <<
    [CT.MQ.PR.2]: Require an Amazon MQ Rabbit MQ broker to use Multi-AZ cluster mode for high availability
    [FIX]: For Amazon MQ brokers with an engine type of RABBITMQ, set the DeploymentMode property to CLUSTER_MULTI_AZ.
    >>
}

# Parameterized Rules

rule check(mq_broker) {
    %mq_broker [
    # Scenario 2
    filter_engine(this)
    ] {
    # Scenarios 3 and 4
    DeploymentMode exists
    DeploymentMode in %ALLOWED_DEPLOYMENT_MODES
    }
}

rule filter_engine(mq_broker) {
    %mq_broker {
    EngineType exists
    EngineType in %ENGINES_WITH_CLUSTER_DEPLOYMENT_SUPPORT
    }
}
# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.MQ.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

MQBrokerSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: MQ broker secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemqusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: ',,='

MQBroker:
  Type: AWS::AmazonMQ::Broker
  Properties:
    AutoMinorVersionUpgrade: true
    BrokerName:
      Ref: AWS::StackName
    EngineVersion: 3.10.10
    HostInstanceType: mq.m5.large
    PubliclyAccessible: false
    Users:
- ConsoleAccess: true
  Username:
    Fn::Sub: '{resolve:secretsmanager:${MQBrokerSecret}::username}'
  Password:
    Fn::Sub: '{resolve:secretsmanager:${MQBrokerSecret}::password}'
EngineType: RABBITMQ
DeploymentMode: CLUSTER_MULTI_AZ

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
MQBrokerSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: MQ broker secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemqusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: ',:='
MQBroker:
  Type: AWS::AmazonMQ::Broker
  Properties:
    AutoMinorVersionUpgrade: true
    BrokerName:
      Ref: AWS::StackName
    EngineVersion: 3.10.10
    HostInstanceType: mq.m5.large
    PubliclyAccessible: false
    Users:
    - ConsoleAccess: true
      Username:
        Fn::Sub: '{resolve:secretsmanager:${MQBrokerSecret}::username}'
      Password:
        Fn::Sub: '{resolve:secretsmanager:${MQBrokerSecret}::password}'
    EngineType: RABBITMQ
    DeploymentMode: SINGLE_INSTANCE
Amazon Managed Streaming for Apache Kafka (Amazon MSK) controls

Topics
- [CT.MSK.PR.1] Require an Amazon Managed Streaming for Apache Kafka (Amazon MSK) cluster to enforce encryption in transit between cluster broker nodes
- [CT.MSK.PR.2] Require an Amazon Managed Streaming for Apache Kafka (Amazon MSK) cluster to be configured with PublicAccess disabled

[CT.MSK.PR.1] Require an Amazon Managed Streaming for Apache Kafka (Amazon MSK) cluster to enforce encryption in transit between cluster broker nodes

This control checks whether an Amazon MSK cluster is configured to encrypt data in transit between broker nodes of the cluster.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::MSK::Cluster
- **AWS CloudFormation guard rule:** [CT.MSK.PR.1 rule specification]

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.MSK.PR.1 rule specification]
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.MSK.PR.1 example templates]

Explanation

Amazon MSK uses TLSv1.2. By default, it encrypts data in transit between the brokers of your Amazon MSK cluster. However, you can override this default at the time you create the cluster.

Usage considerations

- Although we highly recommend enabling in-transit encryption, it can add additional CPU overhead and a few milliseconds of latency. Most use cases aren't sensitive to these
differences, and the magnitude of impact depends on the configuration of your cluster, clients, and usage profile.

**Remediation for rule failure**

In the EncryptionInfo property, provide an EncryptionInTransit configuration and set the value of InCluster to true. Otherwise, omit the InCluster property to adopt the default value of true.

The examples that follow show how to implement this remediation.

**Amazon MSK Cluster - Example**

An Amazon MSK cluster configured to encrypt data in transit between the broker nodes of the cluster. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "MSKCluster": {
        "Type": "AWS::MSK::Cluster",
        "Properties": {
            "BrokerNodeGroupInfo": {
                "ClientSubnets": [
                    {
                        "Ref": "SubnetOne"
                    },
                    {
                        "Ref": "SubnetTwo"
                    }
                ],
                "InstanceType": "kafka.t3.small",
                "SecurityGroups": [
                    {
                        "Fn::GetAtt": [
                            "SecurityGroup",
                            "GroupId"
                        ]
                    }
                ]
            }
        }
    }
}
```
**StorageInfo**: {
  "EBSStorageInfo": {
    "VolumeSize": 1000
  }
},
"ClusterName": {
  "Fn::Sub": "MSKCluster-${AWS::StackName}"
},
"KafkaVersion": "3.4.0",
"NumberOfBrokerNodes": 2,
"EnhancedMonitoring": "DEFAULT",
"EncryptionInfo": {
  "EncryptionInTransit": {
    "InCluster": true
  }
}
}

**YAML example**

```yaml
MSKCluster:
  Type: AWS::MSK::Cluster
  Properties:
    BrokerNodeGroupInfo:
      ClientSubnets:
        - !Ref 'SubnetOne'
        - !Ref 'SubnetTwo'
      InstanceType: kafka.t3.small
      SecurityGroups:
        - !GetAtt 'SecurityGroup.GroupId'
    StorageInfo:
      EBSStorageInfo:
        VolumeSize: 1000
    ClusterName: !Sub 'MSKCluster-${AWS::StackName}'
    KafkaVersion: 3.4.0
    NumberOfBrokerNodes: 2
    EnhancedMonitoring: DEFAULT
    EncryptionInfo:
```

**Proactive controls**
CT.MSK.PR.1 rule specification

```plaintext
# ###################################################################
##       Rule Specification        ##
###################################################################
#
# Rule Identifier:
#   msk_broker_node_tls_check
#
# Description:
#   This control checks whether an Amazon MSK cluster is configured to encrypt data in
#   transit between broker nodes of the cluster.
#
# Reports on:
#   AWS::MSK::Cluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#            document
#     And: The input document does not contain any Amazon MSK cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#            document
#     And: 'InCluster' in 'EncryptionInfo.EncryptionInTransit' has been provided and
#            set to a value other than bool(true)
#     Then: FAIL
#   Scenario: 3
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document contains an Amazon MSK cluster resource
#        And: 'InCluster' in 'EncryptionInfo.EncryptionInTransit' has not been provided
#        Then: PASS
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document contains an Amazon MSK cluster resource
#        And: 'InCluster' in 'EncryptionInfo.EncryptionInTransit' has been provided and
#        set to bool(true)
#        Then: PASS

# Constants
#
let MSK_CLUSTER_TYPE = "AWS::MSK::Cluster"
let INPUT_DOCUMENT = this
#
# Assignments
#
let msk_clusters = Resources.*[ Type == %MSK_CLUSTER_TYPE ]
#
# Primary Rules
#
rule msk_broker_node_tls_check when is_cfn_template(%INPUT_DOCUMENT)
  %msk_clusters not empty {
      check(%msk_clusters.Properties)
      <<
          [CT.MSK.PR.1]: Require an Amazon Managed Streaming for Apache Kafka (Amazon MSK) cluster to enforce encryption in transit between cluster broker nodes
          [FIX]: In the EncryptionInfo property, provide an 'EncryptionInTransit' configuration and set the value of 'InCluster' to true. Otherwise, omit the 'InCluster' property to adopt the default value of true.
      >>
  }

rule msk_broker_node_tls_check when is_cfn_hook(%INPUT_DOCUMENT, %MSK_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%MSK_CLUSTER_TYPE.resourceProperties)
    <<
        [CT.MSK.PR.1]: Require an Amazon Managed Streaming for Apache Kafka (Amazon MSK) cluster to enforce encryption in transit between cluster broker nodes
    >>
}
[FIX]: In the EncryptionInfo property, provide an 'EncryptionInTransit' configuration and set the value of 'InCluster' to true. Otherwise, omit the 'InCluster' property to adopt the default value of true.

>>

# Parameterized Rules

rule check(msk_cluster) {
  %msk_cluster {
    # Scenario 3
    EncryptionInfo not exists or
    # Scenarios 2 and 4
    check_encryption_info_config(this)
  }
}

rule check_encryption_info_config(msk_cluster) {
  %msk_cluster {
    EncryptionInfo exists
    EncryptionInfo is_struct

    EncryptionInfo {
      EncryptionInTransit not exists or
      check_encryption_in_transit_config(this)
    }
  }
}

rule check_encryption_in_transit_config(encryption_info_config) {
  %encryption_info_config {
    EncryptionInTransit exists
    EncryptionInTransit is_struct

    EncryptionInTransit {
      InCluster not exists or
      InCluster == true
    }
  }
}

#
# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.MSK.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
    Type: AWS::EC2::VPC
    Properties:
        CidrBlock: 10.0.0.0/16
        EnableDnsSupport: 'true'
        EnableDnsHostnames: 'true'
SubnetOne:
    Type: AWS::EC2::Subnet
    Properties:
        VpcId:
            Ref: VPC
        CidrBlock: 10.0.0.0/24
        AvailabilityZone:
            Fn::Select:
                - 0
                - Fn::GetAZs: ''
SubnetTwo:
    Type: AWS::EC2::Subnet
    Properties:
        VpcId:
Ref: VPC
CidrBlock: 10.0.1.0/24
AvailabilityZone:
  Fn::Select:
  - 1
  - Fn::GetAZs: ''
SecurityGroup:
  Type: AWS::EC2::SecurityGroup
Properties:
  GroupDescription: MSK Security Group
  SecurityGroupIngress:
  - Description: ZooKeeper plaintext
    FromPort: 2181
    IpProtocol: tcp
    CidrIp:
      Fn::GetAtt:
      - VPC
      - CidrBlock
    ToPort: 2181
  - Description: Bootstrap servers plaintext
    FromPort: 9092
    IpProtocol: tcp
    CidrIp:
      Fn::GetAtt:
      - VPC
      - CidrBlock
    ToPort: 9092
  - Description: Bootstrap servers TLS
    FromPort: 9094
    IpProtocol: tcp
    CidrIp:
      Fn::GetAtt:
      - VPC
      - CidrBlock
    ToPort: 9094
VpcId:
  Ref: VPC
MSKCluster:
  Type: AWS::MSK::Cluster
Properties:
  BrokerNodeGroupInfo:
    ClientSubnets:
    - Ref: SubnetOne
    - Ref: SubnetTwo
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
VpcId:
    Ref: VPC
  CidrBlock: 10.0.1.0/24
AvailabilityZone:
    Fn::Select:
      - 1
      - Fn::GetAZs: '
SecurityGroup:
    Type: AWS::EC2::SecurityGroup
Properties:
  GroupDescription: MSK Security Group
  SecurityGroupIngress:
    - Description: ZooKeeper plaintext
      FromPort: 2181
      IpProtocol: tcp
      CidrIp:
        Fn::GetAtt:
          - VPC
          - CidrBlock
      ToPort: 2181
    - Description: Bootstrap servers plaintext
      FromPort: 9092
      IpProtocol: tcp
      CidrIp:
        Fn::GetAtt:
          - VPC
          - CidrBlock
      ToPort: 9092
    - Description: Bootstrap servers TLS
      FromPort: 9094
      IpProtocol: tcp
      CidrIp:
        Fn::GetAtt:
          - VPC
          - CidrBlock
      ToPort: 9094
VpcId:
    Ref: VPC
MSKCluster:
  Type: AWS::MSK::Cluster
Properties:
  BrokerNodeGroupInfo:
    ClientSubnets:
    - Ref: SubnetOne
Proactive controls
- Ref: SubnetTwo
  InstanceType: kafka.t3.small
  SecurityGroups:
  - Fn::GetAtt:
    - SecurityGroup
    - GroupId
  StorageInfo:
    EBSStorageInfo:
      VolumeSize: 1000
  ClusterName:
    Fn::Sub: MSKCluster-`${AWS::StackName}`
  KafkaVersion: 3.4.0
  NumberOfBrokerNodes: 2
  EnhancedMonitoring: DEFAULT
  EncryptionInfo:
    EncryptionIn Transit:
      InCluster: false

[CT.MSK.PR.2] Require an Amazon Managed Streaming for Apache Kafka (Amazon MSK) cluster to be configured with PublicAccess disabled

This control checks whether an Amazon MSK cluster is configured to disallow public access to cluster brokers by means of the PublicAccess property.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::MSK::Cluster
- **AWS CloudFormation guard rule:** [CT.MSK.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.MSK.PR.2 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.MSK.PR.2 example templates](#)
Explanation

Amazon MSK gives you the option to turn on public access to the brokers of Amazon MSK clusters that run Apache Kafka version 2.6.0 or later. For security reasons, you can't turn on public access while creating an Amazon MSK cluster. However, you can update an existing cluster to make it publicly accessible.

Usage considerations

- In addition to configuring the PublicAccess property, other prerequisite conditions are required when you enable public access to Amazon MSK clusters. For more information on configuring Amazon MSK clusters for public access, see Public Access in the Amazon MSK Developer Guide.

Remediation for rule failure

In the parameter BrokerNodeGroupInfo.ConnectivityInfo.PublicAccess, set the value of Type to DISABLED, or to adopt the default value of DISABLED, do not provide a PublicAccess configuration.

The examples that follow show how to implement this remediation.

Amazon MSK Cluster - Example

An Amazon MSK cluster configured to disallow public access to cluster brokers through the PublicAccess property. The example is shown in JSON and in YAML.

JSON example

```json
{
    "MSKCluster": {
        "Type": "AWS::MSK::Cluster",
        "Properties": {
            "ClusterName": {
                "Fn::Sub": "MSKCluster-${AWS::StackName}"
            },
            "KafkaVersion": "3.4.0",
            "NumberOfBrokerNodes": 2,
            "EnhancedMonitoring": "DEFAULT",
            "EncryptionInfo": {
                "EncryptionInTransit": {
```
"InCluster": true

"ClientAuthentication": {
  "Iam": {
    "Enabled": true
  }
},

"BrokerNodeGroupInfo": {
  "ClientSubnets": [
    {
      "Ref": "SubnetOne"
    },
    {
      "Ref": "SubnetTwo"
    }
  ],
  "InstanceType": "kafka.t3.small",
  "SecurityGroups": [
    {
      "Fn::GetAtt": [
        "SecurityGroup",
        "GroupId"
      ]
    }
  ],
  "StorageInfo": {
    "EBSStorageInfo": {
      "VolumeSize": 1000
    }
  },
  "ConnectivityInfo": {
    "PublicAccess": {
      "Type": "DISABLED"
    }
  }
}
}
YAML example

MSKCluster:
  Type: AWS::MSK::Cluster
  Properties:
    ClusterName: !Sub 'MSKCluster-${AWS::StackName}'
    KafkaVersion: 3.4.0
    NumberOfBrokerNodes: 2
    EnhancedMonitoring: DEFAULT
    EncryptionInfo:
      EncryptionInTransit:
        InCluster: true
    ClientAuthentication:
      Sasl:
        Iam:
          Enabled: true
    BrokerNodeGroupInfo:
      ClientSubnets:
        - !Ref 'SubnetOne'
        - !Ref 'SubnetTwo'
      InstanceType: kafka.t3.small
      SecurityGroups:
        - !GetAtt 'SecurityGroup.GroupId'
    StorageInfo:
      EBSStorageInfo:
        VolumeSize: 1000
    ConnectivityInfo:
      PublicAccess:
        Type: DISABLED

CT.MSK.PR.2 rule specification

# ###################################################################
##       Rule Specification       ##
# ###################################################################
#
# Rule Identifier:
#  msk_public_access_check
#
# Description:
This control checks whether an Amazon MSK cluster is configured to disallow public access to cluster brokers by means of the PublicAccess property.

# Reports on:
# AWS::MSK::Cluster

# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document does not contain any Amazon MSK cluster resources
#   Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an Amazon MSK cluster resource
#   And: 'BrokerNodeGroupInfo' has not been provided
#   Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an MSK cluster resource
#   And: 'BrokerNodeGroupInfo' has been provided
#   And: 'Type' in 'ConnectivityInfo.PublicAccess' has been provided and set to a value other than 'DISABLED'
#   Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an Amazon MSK cluster resource
#   And: 'BrokerNodeGroupInfo' has been provided
#   And: 'Type' in 'ConnectivityInfo.PublicAccess' has not been provided
#   Then: PASS
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an Amazon MSK cluster resource
And: 'BrokerNodeGroupInfo' has been provided
And: 'Type' in 'ConnectivityInfo.PublicAccess' has been provided and
    set to 'DISABLED'
Then: PASS

### Constants

let INPUT_DOCUMENT = this
let MSK_CLUSTER_TYPE = "AWS::MSK::Cluster"
let DISABLED_PUBLIC_ACCESS_TYPE = "DISABLED"

### Assignments

let msk_clusters = Resources.*[ Type == %MSK_CLUSTER_TYPE ]

### Primary Rules

rule msk_public_access_check when is_cfn_template(%INPUT_DOCUMENT)
    %msk_clusters not empty {
    check(%msk_clusters.Properties)
    %msk_clusters not empty {
        [CT.MSK.PR.2]: Require an Amazon Managed Streaming for Apache Kafka (Amazon
        MSK) cluster to be configured with PublicAccess disabled
        [FIX]: In the parameter BrokerNodeGroupInfo.ConnectivityInfo.PublicAccess,
        set the value of Type to DISABLED, or to adopt the default value of DISABLED, do not
        provide a PublicAccess configuration.
        >>
    }
}

rule msk_public_access_check when is_cfn_hook(%INPUT_DOCUMENT, %MSK_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%MSK_CLUSTER_TYPE.resourceProperties)
    %INPUT_DOCUMENT.%MSK_CLUSTER_TYPE.resourceProperties {
        [CT.MSK.PR.2]: Require an Amazon Managed Streaming for Apache Kafka (Amazon
        MSK) cluster to be configured with PublicAccess disabled
        [FIX]: In the parameter BrokerNodeGroupInfo.ConnectivityInfo.PublicAccess,
        set the value of Type to DISABLED, or to adopt the default value of DISABLED, do not
        provide a PublicAccess configuration.
        >>
    }
}
# Parameterized Rules

rule check(msk_cluster) {
    %msk_cluster [
        # Scenario 2
        BrokerNodeGroupInfo exists
        BrokerNodeGroupInfo is_struct
    ] {
        BrokerNodeGroupInfo {
            # Scenarios 3, 4 and 5
            ConnectivityInfo not exists or
            check_connectivity_info_config(this)
        }
    }
}

rule check_connectivity_info_config(broker_node_group_info) {
    %broker_node_group_info {
        ConnectivityInfo exists
        ConnectivityInfo is_struct

        ConnectivityInfo {
            PublicAccess not exists or
            check_public_access_config(this)
        }
    }
}

rule check_public_access_config(connectivity_info_config) {
    %connectivity_info_config {
        PublicAccess exists
        PublicAccess is_struct

        PublicAccess {
            Type not exists or
            Type == %DISABLED_PUBLIC_ACCESS_TYPE
        }
    }
}

#

# Utility Rules

rule is_cfn_template(doc) {
CT.MSK.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: MSK Security Group
    SecurityGroupIngress:
      - Description: ZooKeeper plaintext
        FromPort: 2181
        IpProtocol: tcp
        CidrIp:
          Fn::GetAtt:
            - VPC
            - CidrBlock
        ToPort: 2181
      - Description: Bootstrap servers plaintext
        FromPort: 9092
        IpProtocol: tcp
        CidrIp:
          Fn::GetAtt:
            - VPC
            - CidrBlock
        ToPort: 9092
      - Description: Bootstrap servers TLS
        FromPort: 9094
        IpProtocol: tcp
        CidrIp:
          Fn::GetAtt:
            - VPC
            - CidrBlock
        ToPort: 9094
  VpcId:
    Ref: VPC
MSKCluster:
  Type: AWS::MSK::Cluster
  Properties:
    ClusterName:
      Fn::Sub: MSKCluster-${AWS::StackName}
    KafkaVersion: 3.4.0
    NumberOfBrokerNodes: 2
    EnhancedMonitoring: DEFAULT
    EncryptionInfo:
      EncryptionIn Transit:
InCluster: true
ClientAuthentication:
  Sasl:
  Iam:
    Enabled: true
BrokerNodeGroupInfo:
  ClientSubnets:
    - Ref: SubnetOne
    - Ref: SubnetTwo
  InstanceType: kafka.t3.small
  SecurityGroups:
    - Fn::GetAtt:
      - SecurityGroupId
  StorageInfo:
    EBSStorageInfo:
      VolumeSize: 1000
  ConnectivityInfo:
    PublicAccess:
      Type: DISABLED

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      - Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      - Fn::Select:
        - 0
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
      - Fn::GetAZs: ''

SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: MSK Security Group
    SecurityGroupIngress:
      - Description: ZooKeeper plaintext
        FromPort: 2181
        IpProtocol: tcp
        CidrIp:
          Fn::GetAtt:
            - VPC
            - CidrBlock
        ToPort: 2181
      - Description: Bootstrap servers plaintext
        FromPort: 9092
        IpProtocol: tcp
        CidrIp:
          Fn::GetAtt:
            - VPC
            - CidrBlock
        ToPort: 9092
      - Description: Bootstrap servers TLS
        FromPort: 9094
        IpProtocol: tcp
        CidrIp:
          Fn::GetAtt:
            - VPC
            - CidrBlock
        ToPort: 9094

VpcId:
  Ref: VPC

MSKCluster:
  Type: AWS::MSK::Cluster
Amazon Neptune controls

Topics

- [CT.NEPTUNE.PR.1] Require an Amazon Neptune DB cluster to have AWS Identity and Access Management (IAM) database authentication enabled
- [CT.NEPTUNE.PR.2] Require an Amazon Neptune DB cluster to have deletion protection enabled
- [CT.NEPTUNE.PR.3] Require an Amazon Neptune DB cluster to have storage encryption enabled
- [CT.NEPTUNE.PR.4] Require an Amazon Neptune DB cluster to enable Amazon CloudWatch Logs export for audit logs
• [CT.NEPTUNE.PR.5] Require an Amazon Neptune DB cluster to set a backup retention period greater than or equal to seven days

[CT.NEPTUNE.PR.1] Require an Amazon Neptune DB cluster to have AWS Identity and Access Management (IAM) database authentication enabled

This control checks whether an Amazon Neptune cluster has AWS Identity and Access Management (IAM) database authentication enabled.

• **Control objective:** Enforce least privilege, Use strong authentication
• **Implementation:** AWS CloudFormation guard rule
• **Control behavior:** Proactive
• **Resource types:** AWS::Neptune::DBCluster
• **AWS CloudFormation guard rule:** [CT.NEPTUNE.PR.1 rule specification]

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.NEPTUNE.PR.1 rule specification]
• For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.NEPTUNE.PR.1 example templates]

**Explanation**

You can use AWS Identity and Access Management (IAM) to authenticate to your Neptune DB instance or DB cluster. IAM allows you to manage access to your database resources centrally, instead of managing access individually on each DB instance or cluster.

**Remediation for rule failure**

Set the value of the IamAuthEnabled parameter to true.

The examples that follow show how to implement this remediation.

**Amazon Neptune Cluster - Example**

Neptune Cluster configured with AWS IAM database authentication enabled. The example is shown in JSON and in YAML.
**JSON example**

```json
{
    "NeptuneDBCluster": {
        "Type": "AWS::Neptune::DBCluster",
        "Properties": {
            "IamAuthEnabled": true
        }
    }
}
```

**YAML example**

```yaml
NeptuneDBCluster:
  Type: AWS::Neptune::DBCluster
  Properties:
    IamAuthEnabled: true
```

**CT.NEPTUNE.PR.1 rule specification**

```bash
# ###############################################################################
##       Rule Specification        ##
###############################################################################
#
# Rule Identifier:
#   neptune_cluster_iam_database_authentication_check
#
# Description:
#   This control checks whether an Amazon Neptune cluster has AWS Identity and Access Management (IAM) database authentication enabled.
#
# Reports on:
#   AWS::Neptune::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#```
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Neptune DB cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a Neptune DB cluster resource
#     And: 'IamAuthEnabled' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a Neptune DB cluster resource
#     And: 'IamAuthEnabled' has been provided and set to a value other than
#     bool(true)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a Neptune DB cluster resource
#     And: 'IamAuthEnabled' has been provided and set to bool(true)
#     Then: PASS
#
# Constants
#
let NEPTUNE_CLUSTER_TYPE = "AWS::Neptune::DBCluster"
let INPUT_DOCUMENT = this

#
# Assignments
#
let neptune_db_clusters = Resources.*[ Type == %NEPTUNE_CLUSTER_TYPE ]

#
rule neptune_cluster_iam_database_authentication_check when
  is_cfn_template(%INPUT_DOCUMENT) %neptune_db_clusters not empty {
    check(%neptune_db_clusters.Properties)
    <<
    [CT.NEPTUNE.PR.1]: Require an Amazon Neptune DB cluster to have AWS Identity
    and Access Management (IAM) database authentication enabled
    [FIX]: Set the value of the 'IamAuthEnabled' parameter to true.
    >>
  }

rule neptune_cluster_iam_database_authentication_check when
  is_cfn_hook(%INPUT_DOCUMENT, %NEPTUNE_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%NEPTUNE_CLUSTER_TYPE.resourceProperties)
  <<
  [CT.NEPTUNE.PR.1]: Require an Amazon Neptune DB cluster to have AWS Identity
  and Access Management (IAM) database authentication enabled
  [FIX]: Set the value of the 'IamAuthEnabled' parameter to true.
  >>
}

# Parameterized Rules

# rule check(neptune_cluster) {
  %neptune_cluster {
    # Scenario 2
    IamAuthEnabled exists
    # Scenarios 3 and 4
    IamAuthEnabled == true
  }
}

# Utility Rules

# rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.NEPTUNE.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
NeptuneDBCluster:
  Type: AWS::Neptune::DBCluster
  Properties:
    IamAuthEnabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
NeptuneDBCluster:
  Type: AWS::Neptune::DBCluster
  Properties:
    IamAuthEnabled: false

[CT.NEPTUNE.PR.2] Require an Amazon Neptune DB cluster to have deletion protection enabled

This control checks whether an Amazon Neptune cluster has deletion protection enabled.

- **Control objective:** Improve availability, Protect configurations
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
Resource types: AWS::Neptune::DBCluster

AWS CloudFormation guard rule: CT.NEPTUNE.PR.2 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.NEPTUNE.PR.2 rule specification
- For examples of PASS and FAIL CloudFormation templates related to this control, see: CT.NEPTUNE.PR.2 example templates

Explanation

Cluster deletion protection adds an additional layer of protection against accidental database deletion, or deletion by an unauthorized entity. A Neptune cluster cannot be deleted while deletion protection is enabled. Deletion protection must be disabled first, before a delete request can succeed.

Remediation for rule failure

Set the value of the DeletionProtection parameter to true.

The examples that follow show how to implement this remediation.

Amazon Neptune Cluster - Example

An Amazon Neptune Cluster configured with deletion protection enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
    "NeptuneDBCluster": {
        "Type": "AWS::Neptune::DBCluster",
        "Properties": {
            "DeletionProtection": true
        }
    }
}
```
YAML example

```
NeptuneDBCluster:
  Type: AWS::Neptune::DBCluster
  Properties:
    DeletionProtection: true
```

CT.NEPTUNE.PR.2 rule specification

```
# ####################################################################
##       Rule Specification       ##
####################################################################
#
# Rule Identifier:
#   neptune_cluster_deletion_protection_enabled_check
#
# Description:
#   This control checks whether an Amazon Neptune cluster has deletion protection enabled.
#
# Reports on:
#   AWS::Neptune::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Neptune DB cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Neptune DB cluster resource
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Neptune DB cluster resource
# And: 'DeletionProtection' has been provided and set to a value other than bool(true)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Neptune DB cluster resource
# And: 'DeletionProtection' has been provided and set to bool(true)
# Then: PASS

# Constants
#
let NEPTUNE_CLUSTER_TYPE = "AWS::Neptune::DBCluster"
let INPUT_DOCUMENT = this

# Assignments
#
let neptune_db_clusters = Resources.*[ Type == %NEPTUNE_CLUSTER_TYPE ]

# Primary Rules
#
rule neptune_cluster_deletion_protection_enabled_check when is_cfn_template(%INPUT_DOCUMENT) %neptune_db_clusters not empty {
  check(%neptune_db_clusters.Properties)
  <<
    [CT.NEPTUNE.PR.2]: Require an Amazon Neptune DB cluster to have deletion protection enabled
    [FIX]: Set the value of the 'DeletionProtection' parameter to true.
  >>
}

rule neptune_cluster_deletion_protection_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %NEPTUNE_CLUSTER_TYPE) {

check(%INPUT_DOCUMENT.%NEPTUNE_CLUSTER_TYPE.resourceProperties)

<<
[CT.NEPTUNE.PR.2]: Require an Amazon Neptune DB cluster to have deletion protection enabled
[FIX]: Set the value of the 'DeletionProtection' parameter to true.
>>

# Parameterized Rules

rule check(neptune_cluster) {
  %neptune_cluster {
    # Scenario 2
    DeletionProtection exists
    # Scenarios 3 and 4
    DeletionProtection == true
  }
}

# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.NEPTUNE.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
[CT.NEPTUNE.PR.3] Require an Amazon Neptune DB cluster to have storage encryption enabled

This control checks whether an Amazon Neptune cluster has storage encryption enabled.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Neptune::DBCluster
- **AWS CloudFormation guard rule:** [CT.NEPTUNE.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.NEPTUNE.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.NEPTUNE.PR.3 example templates](#)

**Explanation**
Neptune encrypted instances provide an additional layer of data protection, because they help to secure your data from unauthorized access to the underlying storage. Neptune encryption helps increase data protection of your applications that are deployed in the cloud. You also can use it to fulfill compliance requirements for data-at-rest encryption.

### Usage considerations

- This control checks only whether the `StorageEncrypted` property is provided and set to `true`. When you create an encrypted Neptune DB instance, you also can supply the AWS KMS key identifier for your encryption key by means of the `KmsKeyId` property. If you don't specify an AWS KMS key identifier, Neptune uses your default Amazon RDS encryption key (aws/rds) for your new Neptune DB instance.

### Remediation for rule failure

Set `StorageEncrypted` to `true`.

The examples that follow show how to implement this remediation.

**Amazon Neptune Cluster - Example**

An Amazon Neptune Cluster configured with storage encryption enabled. The example is shown in JSON and in YAML.

#### JSON example

```json
{
   "NeptuneDBCluster": {
      "Type": "AWS::Neptune::DBCluster",
      "Properties": {
         "StorageEncrypted": true
      }
   }
}
```

#### YAML example

```yaml
Proactive controls
```
NeptuneDBCluster:
  Type: AWS::Neptune::DBCluster
  Properties:
    StorageEncrypted: true

CT.NEPTUNE.PR.3 rule specification

```plaintext
# ###################################################################
##       Rule Specification       ##
# ###################################################################
#
# Rule Identifier:
#   neptune_cluster_encrypted_check
#
# Description:
#   This control checks whether an Amazon Neptune cluster has storage encryption enabled.
#
# Reports on:
#   AWS::Neptune::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Neptune DB cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Neptune DB cluster resource
#     And: 'StorageEncrypted' has not been provided
#     Then: FAIL
```
# Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Neptune DB cluster resource
#     And: 'StorageEncrypted' has been provided and set to a value other than bool(true)
#     Then: FAIL
# Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Neptune DB cluster resource
#     And: 'StorageEncrypted' has been provided and set to bool(true)
#     Then: PASS

# Constants
#
let NEPTUNE_CLUSTER_TYPE = "AWS::Neptune::DBCluster"
let INPUT_DOCUMENT = this

# Assignments
#
let neptune_db_clusters = Resources.*[ Type == %NEPTUNE_CLUSTER_TYPE ]

# Primary Rules
#
rule neptune_cluster_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
    %neptune_db_clusters not empty {
        check(%neptune_db_clusters.Properties)
        <<
        [CT.NEPTUNE.PR.3]: Require an Amazon Neptune DB cluster to have storage encryption enabled
        [FIX]: Set 'StorageEncrypted' to 'true'.
        >>
    }

rule neptune_cluster_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %NEPTUNE_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%NEPTUNE_CLUSTER_TYPE.resourceProperties)
    <<
    [CT.NEPTUNE.PR.3]: Require an Amazon Neptune DB cluster to have storage encryption enabled
}
[FIX]: Set 'StorageEncrypted' to 'true'.

```python
}

# # Parameterized Rules #
rule check(neptune_cluster) {
  %neptune_cluster {
    # Scenario 2
    StorageEncrypted exists
    # Scenarios 3 and 4
    StorageEncrypted == true
  }
}

# # Utility Rules #
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.NEPTUNE.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  NeptuneDBCluster:
    Type: AWS::Neptune::DBCluster
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  NeptuneDBCluster:
    Type: AWS::Neptune::DBCluster
    Properties:
      StorageEncrypted: false

[CT.NEPTUNE.PR.4] Require an Amazon Neptune DB cluster to enable Amazon CloudWatch Logs export for audit logs

This control checks whether an Amazon Neptune cluster is configured to send audit logs to Amazon CloudWatch Logs.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Neptune::DBCluster
- **AWS CloudFormation guard rule:** [CT.NEPTUNE.PR.4 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.NEPTUNE.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.NEPTUNE.PR.4 example templates](#)

Explanation
You can configure an Amazon Neptune DB cluster to publish audit log data to a log group in Amazon CloudWatch Logs. Storing your Neptune DB cluster audit log data in Amazon CloudWatch Logs allows you to perform real-time analysis of the log data, and also to use Amazon CloudWatch to create alarms and view metrics.

**Remediation for rule failure**

In the `EnableCloudwatchLogsExports` parameter, set an entry to the value `audit`.

The examples that follow show how to implement this remediation.

**Amazon Neptune cluster - Example**

An Amazon Neptune Cluster configured to export audit logs to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "NeptuneDBCluster": {
        "Type": "AWS::Neptune::DBCluster",
        "Properties": {
            "EnableCloudwatchLogsExports": [
                "audit"
            ]
    }
}
```

**YAML example**

```yaml
NeptuneDBCluster:
  Type: AWS::Neptune::DBCluster
  Properties:
    EnableCloudwatchLogsExports:
      - audit
```
CT.NEPTUNE.PR.4 rule specification

# ###################################################################
##       Rule Specification        ##
###################################################################
#
# Rule Identifier:
#   neptune_cluster_cloudwatch_audit_log_export_enabled
#
# Description:
#   This control checks whether an Amazon Neptune cluster is configured to send audit
logs to Amazon CloudWatch Logs.
#
# Reports on:
#   AWS::Neptune::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#            document
#            And: The input document does not contain any Neptune DB cluster resources
#            Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#            document
#            And: The input document contains a Neptune DB cluster resource
#            And: 'EnableCloudwatchLogsExports' has not been provided or has been provided
#                    as an empty list
#            Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#            document
#            And: The input document contains a Neptune DB cluster resource
#            And: 'EnableCloudwatchLogsExports' has been provided as a non-empty list
#            And: 'EnableCloudwatchLogsExports' does not contain an entry with the value 'audit'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a Neptune DB cluster resource
# And: 'EnableCloudwatchLogsExports' has been provided as a non-empty list
# And: 'EnableCloudwatchLogsExports' contains an entry with the value 'audit'
# Then: PASS
#
# Constants
#
let NEPTUNE_CLUSTER_TYPE = "AWS::Neptune::DBCluster"
let INPUT_DOCUMENT = this
#
# Assignments
#
let neptune_db_clusters = Resources.*[ Type == %NEPTUNE_CLUSTER_TYPE ]
#
# Primary Rules
#
rule neptune_cluster_cloudwatch_audit_log_export_enabled when
is_cfn_template(%INPUT_DOCUMENT)
%neptune_db_clusters not empty {
  check(%neptune_db_clusters.Properties)
  
  [CT.NEPTUNE.PR.4]: Require an Amazon Neptune DB cluster to enable Amazon
  CloudWatch log export for audit logs
  [FIX]: In the 'EnableCloudwatchLogsExports' parameter, set an entry to the
  value audit.
  
}

rule neptune_cluster_cloudwatch_audit_log_export_enabled when
is_cfn_hook(%INPUT_DOCUMENT, %NEPTUNE_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%NEPTUNE_CLUSTER_TYPE.resourceProperties)
  
  [CT.NEPTUNE.PR.4]: Require an Amazon Neptune DB cluster to enable Amazon
  CloudWatch log export for audit logs
  [FIX]: In the 'EnableCloudwatchLogsExports' parameter, set an entry to the
  value audit.
# Parameterized Rules

```bash
rule check(neptune_cluster) {
  %neptune_cluster {
    # Scenario 2
    EnableCloudwatchLogsExports exists
    EnableCloudwatchLogsExports is_list
    EnableCloudwatchLogsExports not empty

    # Scenarios 3 and 4
    some EnableCloudwatchLogsExports[*] == "audit"
  }
}
```

# Utility Rules

```bash
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```bash
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

## CT.NEPTUNE.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

```
NeptuneDBCluster:
```
Type: AWS::Neptune::DBCluster
Properties:
  EnableCloudwatchLogsExports:
  - audit
  - slowquery

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  NeptuneDBCluster:
    Type: AWS::Neptune::DBCluster
    Properties:
      EnableCloudwatchLogsExports:
      - slowquery

[CT.NEPTUNE.PR.5] Require an Amazon Neptune DB cluster to set a backup retention period greater than or equal to seven days

This control checks whether Amazon Neptune DB clusters have configured automatic backups with a retention period set to 7 or more days (>=7). The default retention period is one day.

- Control objective: Improve resiliency
- Implementation: AWS CloudFormation guard rule
- Control behavior: Proactive
- Resource types: AWS::Neptune::DBCluster
- AWS CloudFormation guard rule: CT.NEPTUNE.PR.5 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.NEPTUNE.PR.5 rule specification
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.NEPTUNE.PR.5 example templates
Explanation

Amazon Neptune backs up your cluster volume automatically, and it retains restore data for the length of the backup retention period. Backups are continuous and incremental. You can restore to any point within the backup retention period, quickly. No performance impact or interruption of database service occurs as backup data is being written.

Remediation for rule failure

Set the `BackupRetentionPeriod` parameter to an integer value between 7 and 35 days (inclusive).

The examples that follow show how to implement this remediation.

Amazon Neptune cluster - Example

An Amazon Neptune Cluster configured with a backup retention period of seven (7) days. The example is shown in JSON and in YAML.

JSON example

```json
{
    "NeptuneDBCluster": {
       "Type": "AWS::Neptune::DBCluster",
       "Properties": {
           "BackupRetentionPeriod": 7
        }
    }
}
```

YAML example

```yaml
NeptuneDBCluster:
    Type: AWS::Neptune::DBCluster
    Properties:
        BackupRetentionPeriod: 7
```
CT.NEPTUNE.PR.5 rule specification

# ###################################################################
##       Rule Specification        ##
###################################################################

# Rule Identifier:
# neptune_cluster_backup_retention_check
#
# Description:
# This control checks whether Amazon Neptune DB clusters have configured automatic
backups with a retention period set to 7 or more days (>=7). The default retention
period is one day.
#
# Reports on:
# AWS::Neptune::DBCluster
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document does not contain any Neptune DB cluster resources
#   Then: SKIP
# Scenario: 2
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains a Neptune DB cluster resource
#   And: 'BackupRetentionPeriod' has not been provided
#   Then: FAIL
# Scenario: 3
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains a Neptune DB cluster resource
#   And: 'BackupRetentionPeriod' has been provided and set to an integer value
#   less than seven (< 7)
#   Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Neptune DB cluster resource
# And: 'BackupRetentionPeriod' has been provided and set to an integer value greater than or equal to seven (>=7)
# Then: PASS

# Constants
#
let NEPTUNE_CLUSTER_TYPE = "AWS::Neptune::DBCluster"
let MINIMUM_BACKUP_RETENTION_PERIOD = 7
let INPUT_DOCUMENT = this

# Assignments
#
let neptune_db_clusters = Resources.*[ Type == %NEPTUNE_CLUSTER_TYPE ]

# Primary Rules
#
rule neptune_cluster_backup_retention_check when is_cfn_template(%INPUT_DOCUMENT) { %neptune_db_clusters not empty { check(%neptune_db_clusters.Properties) %neptune_db_clusters not empty {
   [CT.NEPTUNE.PR.5]: Require an Amazon Neptune DB cluster to set a backup retention period greater than or equal to seven days
   [FIX]: Set the 'BackupRetentionPeriod' parameter to an integer value between 7 and 35 days (inclusive).
   >>
}
}
rule neptune_cluster_backup_retention_check when is_cfn_hook(%INPUT_DOCUMENT, %NEPTUNE_CLUSTER_TYPE) {
   check(%INPUT_DOCUMENT.%NEPTUNE_CLUSTER_TYPE.resourceProperties) %neptune_db_clusters not empty {
      [CT.NEPTUNE.PR.5]: Require an Amazon Neptune DB cluster to set a backup retention period greater than or equal to seven days
      [FIX]: Set the 'BackupRetentionPeriod' parameter to an integer value between 7 and 35 days (inclusive).
      >>
}
# Parameterized Rules

```python
rule check(neptune_cluster) {
    %neptune_cluster {
        # Scenario 2
        BackupRetentionPeriod exists
        # Scenarios 3 and 4
        BackupRetentionPeriod >= %MINIMUM_BACKUP_RETENTION_PERIOD
    }
}
```

# Utility Rules

```python
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

## CT.NEPTUNE.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:**

```yaml
NeptuneDBCluster:
  Type: AWS::Neptune::DBCluster
  Properties:
    BackupRetentionPeriod: 7
```
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  NeptuneDBCluster:
    Type: AWS::Neptune::DBCluster
    Properties:
      BackupRetentionPeriod: 1

AWS Network Firewall controls

Topics

- [CTNETWORK-FIREWALL.PR.1] Require any AWS Network Firewall firewall policy to have an associated rule group
- [CTNETWORK-FIREWALL.PR.2] Require any AWS Network Firewall firewall policy to drop or forward stateless full packets by default when they do not match a rule
- [CTNETWORK-FIREWALL.PR.3] Require any AWS Network Firewall firewall policy to drop or forward fragmented packets by default when they do not match a stateless rule
- [CTNETWORK-FIREWALL.PR.4] Require any AWS Network Firewall rule group to contain at least one rule
- [CTNETWORK-FIREWALL.PR.5] Require an AWS Network Firewall firewall to be deployed across multiple Availability Zones

[CTNETWORK-FIREWALL.PR.1] Require any AWS Network Firewall firewall policy to have an associated rule group

This control checks whether there is at least one stateful or stateless rule group associated with an AWS Network Firewall firewall policy.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::NetworkFirewall::FirewallPolicy
- **AWS CloudFormation guard rule:** [CTNETWORK-FIREWALL.PR.1 rule specification](http://example.com/ctnetwork-firewall.pr.1)
Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.NETWORK-FIREWALL.PR.1 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.NETWORK-FIREWALL.PR.1 example templates](#)

Explanation

A firewall policy defines how your firewall monitors and handles traffic in Amazon Virtual Private Cloud (Amazon VPC). Configuration of stateless and stateful rule groups helps to filter packets and traffic flows, and to define the default traffic handling settings.

Remediation for rule failure

Within the `FirewallPolicy` definition, refer to one or more rule groups in `StatefulRuleGroupReferences` or `StatelessRuleGroupReferences`.

The examples that follow show how to implement this remediation.

AWS Network Firewall Firewall Policy - Example

AWS Network Firewall firewall policy configured with stateful and stateless rule group associations. The example is shown in JSON and in YAML.

JSON example

```
{
    "FirewallPolicy": {
        "Type": "AWS::NetworkFirewall::FirewallPolicy",
        "Properties": {
            "FirewallPolicyName": "sample-firewall-policy",
            "FirewallPolicy": {
                "StatelessDefaultActions": [
                    "aws:forward_to_sfe"
                ],
                "StatelessFragmentDefaultActions": [
                    "aws:drop"
                ],
                "StatefulRuleGroupReferences": [
                    {
```
YAML example

FirewallPolicy:
  Type: AWS::NetworkFirewall::FirewallPolicy
  Properties:
    FirewallPolicyName: sample-firewall-policy
    FirewallPolicy:
      StatelessDefaultActions:
        - aws:forward_to_sfe
      StatelessFragmentDefaultActions:
        - aws:drop
      StatefulRuleGroupReferences:
        - ResourceArn: !Ref 'StatefulRuleGroup'
      StatelessRuleGroupReferences:
        - ResourceArn: !Ref 'StatelessRuleGroup'
        - Priority: 100

CT.NETWORK-FIREWALL.PR.1 rule specification

# ###################################
## Rule Specification

### Rule Identifier:

netfw_policy_rule_group_associated_check

### Description:

This control checks whether there is at least one stateful or stateless rule group associated with an AWS Network Firewall firewall policy.

### Reports on:

AWS::NetworkFirewall::FirewallPolicy

### Evaluates:

AWS CloudFormation, AWS CloudFormation hook

### Rule Parameters:

None

### Scenarios:

#### Scenario: 1

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

And: The input document does not contain any NetworkFirewall firewall policy resources

Then: SKIP

#### Scenario: 2

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

And: The input document contains a NetworkFirewall firewall policy resource

And: 'StatefulRuleGroupReferences' has not been provided in 'FirewallPolicy'

And: 'StatelessRuleGroupReferences' has not been provided in 'FirewallPolicy'

Then: FAIL

#### Scenario: 3

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

And: The input document contains a NetworkFirewall firewall policy resource

And: 'StatefulRuleGroupReferences' has not been provided in 'FirewallPolicy'

And: 'StatelessRuleGroupReferences' has been provided as an empty list

Then: FAIL

#### Scenario: 4

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

And: The input document contains a NetworkFirewall firewall policy resource

Then: FAIL
And: 'StatelessRuleGroupReferences' has not been provided in 'FirewallPolicy'
And: 'StatefulRuleGroupReferences' has been provided as an empty list
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains a NetworkFirewall firewall policy resource
And: 'StatelessRuleGroupReferences' has been provided as an empty list
And: 'StatefulRuleGroupReferences' has been provided as an empty list
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains a NetworkFirewall firewall policy resource
And: One or both of 'StatelessRuleGroupReferences' and 'StatefulRuleGroupReferences' have been provided as a non-empty list
Then: PASS

# Constants

let NETFW_FIREWALL_POLICY_TYPE = "AWS::NetworkFirewall::FirewallPolicy"
let INPUT_DOCUMENT = this

# Assignments

let netfw_firewall_policies = Resources.*[ Type == %NETFW_FIREWALL_POLICY_TYPE ]

# Primary Rules

rule netfw_policy_rule_group_associated_check when is_cfn_template(%INPUT_DOCUMENT)

  %netfw_firewall_policies not empty {
    check(%netfw_firewall_policies.Properties)
    =>
      [CT.NETWORK-FIREWALL.PR.1]: Require any AWS Network Firewall firewall policy to have an associated rule group
      [FIX]: Within the 'FirewallPolicy' definition, refer to one or more rule groups in 'StatefulRuleGroupReferences' or 'StatelessRuleGroupReferences'.
    >>
  }
rule netfw_policy_rule_group_associated_check when is_cfn_hook(%INPUT_DOCUMENT, %NETFW_FIREWALL_POLICY_TYPE) {
    check(%INPUT_DOCUMENT.%NETFW_FIREWALL_POLICY_TYPE.resourceProperties) <<
    [CT.NETWORK-FIREWALL.PR.1]: Require any AWS Network Firewall firewall policy to have an associated rule group
    [FIX]: Within the 'FirewallPolicy' definition, refer to one or more rule groups in 'StatefulRuleGroupReferences' or 'StatelessRuleGroupReferences'.
    >>
}

# Parameterized Rules
# rule check(netfw_firewall_policy) {
%netfw_firewall_policy {
    # Scenario 2
    FirewallPolicy exists
    FirewallPolicy is_struct

    FirewallPolicy {
        # Scenario 3, 4, 5 and 6
        StatefulRuleGroupReferences exists or
        StatelessRuleGroupReferences exists

        check_property_is_list_and_not_empty(StatefulRuleGroupReferences) or
        check_property_is_list_and_not_empty(StatelessRuleGroupReferences)
    }
}
}

rule check_property_is_list_and_not_empty(property) {
    %property {
        this is_list
        this not empty
    }
}

# Utility Rules
# rule is_cfn_template(doc) {
%doc {
    AWSTemplateFormatVersion exists or
CT.NETWORK-FIREWALL.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
StatefulRuleGroup:
  Type: AWS::NetworkFirewall::RuleGroup
  Properties:
    RuleGroupName:
      Fn::Sub: ${AWS::StackName}-stateful-example
    Type: STATEFUL
    RuleGroup:
      RulesSource:
        RulesString: pass tcp 10.20.20.0/24 45400:45500 < 10.10.10.0/24 5203
        (msg:"test";sid:1;rev:1;)
    Capacity: 100
StatelessRuleGroup:
  Type: AWS::NetworkFirewall::RuleGroup
  Properties:
    RuleGroupName:
      Fn::Sub: ${AWS::StackName}-stateless-example
    Type: STATELESS
    RuleGroup:
      RulesSource:
        StatelessRulesAndCustomActions:
          StatelessRules: []
    Capacity: 100
FirewallPolicy:
  Type: AWS::NetworkFirewall::FirewallPolicy
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
FirewallPolicy:
  Type: AWS::NetworkFirewall::FirewallPolicy
  Properties:
    FirewallPolicyName:
      Fn::Sub: ${AWS::StackName}-example
    FirewallPolicy:
      StatelessDefaultActions:
        - aws:forward_to_sfe
      StatelessFragmentDefaultActions:
        - aws:drop

[CT.NETWORK-FIREWALL.PR.2] Require any AWS Network Firewall firewall policy to drop or forward stateless full packets by default when they do not match a rule

This control checks whether an AWS Network Firewall firewall policy is configured with a user-defined stateless default action for full packets.

- Control objective: Limit network access
• **Implementation**: AWS CloudFormation Guard Rule
• **Control behavior**: Proactive
• **Resource types**: AWS::NetworkFirewall::FirewallPolicy
• **AWS CloudFormation guard rule**: CT.NETWORK-FIREWALL.PR.2 rule specification

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.NETWORK-FIREWALL.PR.2 rule specification](#)
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.NETWORK-FIREWALL.PR.2 example templates](#)

**Explanation**

A firewall policy defines how your firewall monitors and handles traffic in Amazon VPC. You configure stateless and stateful rule groups to filter packets and traffic flows. Defaulting to Pass can allow unintended traffic.

**Remediation for rule failure**

Within FirewallPolicy, include one of aws:drop or aws:forward_to_sfe in StatelessDefaultActions.

The examples that follow show how to implement this remediation.

**AWS Network Firewall Firewall Policy - Example One**

AWS Network Firewall firewall policy configured with a stateless default action to drop full packets. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "FirewallPolicy": {
        "Type": "AWS::NetworkFirewall::FirewallPolicy",
        "Properties": {
            "FirewallPolicyName": {
                "Fn::Sub": "${AWS::StackName}-sample"
            }
        }
    }
}
```
"FirewallPolicy": {
  "StatelessFragmentDefaultActions": [
    "aws:forward_to_sfe"
  ],
  "StatelessDefaultActions": [
    "aws:drop"
  ]
}

YAML example

FirewallPolicy:
  Type: AWS::NetworkFirewall::FirewallPolicy
Properties:
  FirewallPolicyName: !Sub '${AWS::StackName}-sample'
  FirewallPolicy:
    StatelessFragmentDefaultActions:
      - aws:forward_to_sfe
    StatelessDefaultActions:
      - aws:drop

The examples that follow show how to implement this remediation.

AWS Network Firewall Firewall Policy - Example Two

AWS Network Firewall firewall policy configured with a stateless default action to forward full packets to the stateful rule engine for further inspection. The example is shown in JSON and in YAML.

JSON example

```json
{
  "FirewallPolicy": {
    "Type": "AWS::NetworkFirewall::FirewallPolicy",
    "Properties": {
```
YAML example

FirewallPolicy:
  Type: AWS::NetworkFirewall::FirewallPolicy
  Properties:
    FirewallPolicyName: !Sub '${AWS::StackName}-sample'
    FirewallPolicy:
      StatelessFragmentDefaultActions:
        - aws:forward_to_sfe
      StatelessDefaultActions:
        - aws:forward_to_sfe

CT.NETWORK-FIREWALL.PR.2 rule specification

# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   netfw_policy_default_action_full_packets_check
# Description:

Proactive controls
This control checks whether an AWS Network Firewall firewall policy is configured with a user-defined stateless default action for full packets.

Reports on:
AWS::NetworkFirewall::FirewallPolicy

Evaluates:
AWS CloudFormation, AWS CloudFormation hook

Rule Parameters:
None

Scenarios:
Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any Network Firewall firewall policy resources
Then: SKIP

Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a Network Firewall firewall policy resource
And: 'StatelessDefaultActions' has not been provided in 'FirewallPolicy'
Then: FAIL

Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a Network Firewall firewall policy resource
And: 'StatelessDefaultActions' has been provided in 'FirewallPolicy' as an empty list
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a Network Firewall firewall policy resource
And: 'StatelessDefaultActions' has been provided in 'FirewallPolicy' as a list that does not contain
one of 'aws:drop' or 'aws:forward_to_sfe'
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains a Network Firewall firewall policy resource
And: 'StatelessDefaultActions' has been provided in 'FirewallPolicy' as a list that contains either 'aws:drop' or 'aws:forward_to_sfe'.
Then: PASS

# Constants
#
let NETFW_FIREWALL_POLICY_TYPE = "AWS::NetworkFirewall::FirewallPolicy"
let INPUT_DOCUMENT = this
let ALLOWED_STATELESS_ACTIONS_LIST = [ "aws:drop", "aws:forward_to_sfe" ]

# Assignments
#
let netfw_firewall_policies = Resources.*[ Type == %NETFW_FIREWALL_POLICY_TYPE ]

# Primary Rules
#
rule netfw_policy_default_action_full_packets_check when is_cfn_template(%INPUT_DOCUMENT) %netfw_firewall_policies not empty {
    check(%netfw_firewall_policies.Properties)
    =>
    [CT.NETWORK-FIREWALL.PR.2]: Require any AWS Network Firewall firewall policy to drop or forward stateless full packets by default when they do not match a rule
    [FIX]: Within 'FirewallPolicy', include one of 'aws:drop' or 'aws:forward_to_sfe' in 'StatelessDefaultActions'.
    =>
}

rule netfw_policy_default_action_full_packets_check when is_cfn_hook(%INPUT_DOCUMENT, %NETFW_FIREWALL_POLICY_TYPE) {
    check(%INPUT_DOCUMENT.%NETFW_FIREWALL_POLICY_TYPE.resourceProperties)
    =>
    [CT.NETWORK-FIREWALL.PR.2]: Require any AWS Network Firewall firewall policy to drop or forward stateless full packets by default when they do not match a rule
    [FIX]: Within 'FirewallPolicy', include one of 'aws:drop' or 'aws:forward_to_sfe' in 'StatelessDefaultActions'.
    =>
}
# Parameterized Rules

rule check(netfw_firewall_policy) {
  %netfw_firewall_policy {
    # Scenario 2
    FirewallPolicy exists
    FirewallPolicy is_struct
    FirewallPolicy {
      StatelessDefaultActions exists
      # Scenario 3
      StatelessDefaultActions is_list
      StatelessDefaultActions not empty

      # Scenario 4 and 5
      some StatelessDefaultActions[*] {
        this in %ALLOWED_STATELESS_ACTIONS_LIST
      }
    }
  }
}

# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.NETWORK-FIREWALL.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
FirewallPolicy:
  Type: AWS::NetworkFirewall::FirewallPolicy
Properties:
  FirewallPolicyName: 
    Fn::Sub: ${AWS::StackName}-example
  FirewallPolicy:
    StatelessFragmentDefaultActions:
    - aws:forward_to_sfe
    StatelessDefaultActions:
    - aws:drop

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
FirewallPolicy:
  Type: AWS::NetworkFirewall::FirewallPolicy
Properties:
  FirewallPolicyName:
    Fn::Sub: ${AWS::StackName}-example
  FirewallPolicy:
    StatelessFragmentDefaultActions:
    - aws:pass
    StatelessDefaultActions:
    - aws:pass
[CT.NETWORK-FIREWALL.PR.3] Require any AWS Network Firewall firewall policy to drop or forward fragmented packets by default when they do not match a stateless rule

This control checks whether an AWS Network Firewall firewall policy is configured with a default action to drop or forward fragmented packets, when the packets do not match a stateless rule.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::NetworkFirewall::FirewallPolicy
- **AWS CloudFormation guard rule:** [CT.NETWORK-FIREWALL.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.NETWORK-FIREWALL.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.NETWORK-FIREWALL.PR.3 example templates](#)

**Explanation**

A firewall policy defines how your firewall monitors and handles traffic in Amazon VPC. You configure stateless and stateful rule groups to filter packets and traffic flows. Defaulting to Pass can allow unintended traffic.

**Remediation for rule failure**

Within FirewallPolicy, include one of `aws:drop` or `aws:forward_to_sfe` in StatelessFragmentDefaultActions.

The examples that follow show how to implement this remediation.

**AWS Network Firewall Firewall Policy - Example One**

AWS Network Firewall firewall policy configured with a stateless default action to drop fragmented packets. The example is shown in JSON and in YAML.

**JSON example**
The examples that follow show how to implement this remediation.
AWS Network Firewall Firewall Policy - Example Two

AWS Network Firewall firewall policy configured with a stateless default action to forward fragmented packets to the stateful rule engine for further inspection. The example is shown in JSON and in YAML.

**JSON example**

```
{
   "FirewallPolicy": {
      "Type": "AWS::NetworkFirewall::FirewallPolicy",
      "Properties": {
         "FirewallPolicyName": {
            "Fn::Sub": "${AWS::StackName}-sample"
         },
         "FirewallPolicy": {
            "StatelessDefaultActions": [
               "aws:forward_to_sfe"
            ],
            "StatelessFragmentDefaultActions": [
               "aws:forward_to_sfe"
            ]
         }
      }
   }
}
```

**YAML example**

```
FirewallPolicy:
  Type: AWS::NetworkFirewall::FirewallPolicy
  Properties:
    FirewallPolicyName: !Sub '${AWS::StackName}-sample'
    FirewallPolicy:
      StatelessDefaultActions:
        - aws:forward_to_sfe
      StatelessFragmentDefaultActions:
        - aws:forward_to_sfe
```
CT.NETWORK-FIREWALL.PR.3 rule specification

# #################################################################################################
##       Rule Specification        ##
####################################################################################################
#
# Rule Identifier:
#   netfw_policy_default_action_fragment_packets_check
#
# Description:
#   This control checks whether an AWS Network Firewall firewall policy is configured with a default action to drop or forward fragmented packets, when the packets do not match a stateless rule.
#
# Reports on:
#   AWS::NetworkFirewall::FirewallPolicy
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Network Firewall firewall policy resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Network Firewall firewall policy resource
#     And: 'StatelessFragmentDefaultActions' has not been provided in 'FirewallPolicy'
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

Proactive controls
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Network Firewall firewall policy resource
# And: 'StatelessFragmentDefaultActions' has been provided in 'FirewallPolicy' as a list that does not contain
#      one of 'aws:drop' or 'aws:forward_to_sfe'
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Network Firewall firewall policy resource
# And: 'StatelessFragmentDefaultActions' has been provided in 'FirewallPolicy' as a list that contains either
#      'aws:drop' or 'aws:forward_to_sfe'
# Then: PASS

# Constants
#
let NETFW_FIREWALL_POLICY_TYPE = "AWS::NetworkFirewall::FirewallPolicy"
let ALLOWED_STATELESS_FRAGMENT_ACTIONS_LIST = [ "aws:drop", "aws:forward_to_sfe" ]
let INPUT_DOCUMENT = this

# Assignments
#
let netfw_firewall_policies = Resources.*[ Type == %NETFW_FIREWALL_POLICY_TYPE ]

# Primary Rules
#
rule netfw_policy_default_action_fragment_packets_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %netfw_firewall_policies not empty {
    check(%netfw_firewall_policies.Properties)
    <>
[CT.NETWORK-FIREWALL.PR.3]: Require any AWS Network Firewall firewall policy to drop or forward fragmented packets by default when they do not match a stateless rule

[FIX]: Within 'FirewallPolicy', include one of 'aws:drop' or 'aws:forward_to_sfe' in 'StatelessFragmentDefaultActions'.

```
rule netfw_policy_default_action_fragment_packets_check when
is_cfn_hook(%INPUT_DOCUMENT, %NETFW_FIREWALL_POLICY_TYPE) {
  check(%INPUT_DOCUMENT.%NETFW_FIREWALL_POLICY_TYPE.resourceProperties)
  >>
  [CT.NETWORK-FIREWALL.PR.3]: Require any AWS Network Firewall firewall policy to drop or forward fragmented packets by default when they do not match a stateless rule
  [FIX]: Within 'FirewallPolicy', include one of 'aws:drop' or 'aws:forward_to_sfe' in 'StatelessFragmentDefaultActions'.
  >>
}
```

# Parameterized Rules

```
# Parameterized Rules
#
rule check(netfw_firewall_policy) {
  %netfw_firewall_policy {
    # Scenario 2
    FirewallPolicy exists
    FirewallPolicy is_struct
    FirewallPolicy {
      # Scenario 2 and 3
      StatelessFragmentDefaultActions exists
      StatelessFragmentDefaultActions is_list
      StatelessFragmentDefaultActions not empty

      # Scenario 4 and 5
      some StatelessFragmentDefaultActions[*] {
        this in %ALLOWED_STATELESS_FRAGMENT_ACTIONS_LIST
      }
    }
  }
}
```

# Utility Rules

Proactive controls
You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  FirewallPolicy:
    Type: AWS::NetworkFirewall::FirewallPolicy
    Properties:
      FirewallPolicyName:
        Fn::Sub: ${AWS::StackName}-example
      StatelessDefaultActions:
        - aws:forward_to_sfe
      StatelessFragmentDefaultActions:
        - aws:drop

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  FirewallPolicy:
    Type: AWS::NetworkFirewall::FirewallPolicy
Properties:
  FirewallPolicyName:
    Fn::Sub: ${AWS::StackName}-example
  FirewallPolicy:
    StatelessDefaultActions:
      - aws:pass
    StatelessFragmentDefaultActions:
      - aws:pass

[CT.NETWORK-FIREWALL.PR.4] Require any AWS Network Firewall rule group to contain at least one rule

This control checks whether an AWS Network Firewall stateless rule group contains rules.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::NetworkFirewall::RuleGroup
- **AWS CloudFormation guard rule:** [CT.NETWORK-FIREWALL.PR.4 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.NETWORK-FIREWALL.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.NETWORK-FIREWALL.PR.4 example templates](#)

Explanation

A rule group contains rules that define how your firewall processes traffic in your VPC. An empty, stateless rule group, when present in a firewall policy, might give the impression that the rule group will process traffic. However, when the stateless rule group is empty, it does not process traffic.
Usage considerations

- This control applies only to AWS Network Firewall stateless rule groups.

Remediation for rule failure


The examples that follow show how to implement this remediation.

AWS Network Firewall Rule Group - Example

AWS Network Firewall rule group configured with a stateless rule. The example is shown in JSON and in YAML.

JSON example

```json
{
    "NetworkFirewallRuleGroup": {
        "Type": "AWS::NetworkFirewall::RuleGroup",
        "Properties": {
            "RuleGroupName": {
                "Fn::Sub": "${AWS::StackName}-sample"
            },
            "Capacity": 100,
            "Description": "Sample rule group",
            "Type": "STATELESS",
            "RuleGroup": {
                "RulesSource": {
                    "StatelessRulesAndCustomActions": {
                        "StatelessRules": [
                            {
                                "RuleDefinition": {
                                    "MatchAttributes": {
                                        "Sources": [
                                            {
                                                "AddressDefinition": "0.0.0.0/0"
                                            }
                                        ]
                                    }
                                }
                            }
                        ]
                    }
                }
            }
        }
    }
}
```
"Destinations": [
    {
        "AddressDefinition": "10.0.0.0/8"
    }
],
"SourcePorts": [
    {
        "FromPort": 15000,
        "ToPort": 30000
    }
],
"DestinationPorts": [
    {
        "FromPort": 443,
        "ToPort": 443
    }
],
"Protocols": [6],
"Actions": [
    "aws:forward_to_sfe"
],
"Priority": 1
}

YAML example

NetworkFirewallRuleGroup:
  Type: AWS::NetworkFirewall::RuleGroup
  Properties:
    RuleGroupName: !Sub '${AWS::StackName}-sample'
CT.NETWORK-FIREWALL.PR.4 rule specification

# ********************
##   Rule Specification   ##
# ********************
# Rule Identifier:
#  netfw_stateless_rule_group_not_empty_check
# Description:
#  This control checks whether an AWS Network Firewall stateless rule group contains rules.
# Reports on:
#  AWS::NetworkFirewall::RuleGroup
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Network Firewall rule group
#          resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a Network Firewall rule group resource
#     And: 'Type' is not equal to 'STATELESS'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a Network Firewall rule group resource
#     And: 'Type' is 'STATELESS'
#     And: 'RuleGroup.RulesSource.StatelessRulesAndCustomActions' has not been
#          provided
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a Network Firewall rule group resource
#     And: 'Type' is 'STATELESS'
#     And: 'RuleGroup.RulesSource.StatelessRulesAndCustomActions' has been provided
#     And: 'StatelessRules' has not been provided within
#          'StatelessRulesAndCustomActions' or has been provided with
#          an empty list value
#     Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a Network Firewall rule group resource
#     And: 'Type' is 'STATELESS'
#     And: 'RuleGroup.RulesSource.StatelessRulesAndCustomActions' has been provided
And: 'StatelessRules' has been provided within 'StatelessRulesAndCustomActions' as a non-empty list value
Then: PASS

# Constants
#
let NETFW_RULE_GROUP_TYPE = "AWS::NetworkFirewall::RuleGroup"
let INPUT_DOCUMENT = this

# Assignments
#
let netfw_rule_group = Resources.*[ Type == %NETFW_RULE_GROUP_TYPE ]

# Primary Rules
#
rule netfw_stateless_rule_group_not_empty_check when is_cfn_template(%INPUT_DOCUMENT)
%netfw_rule_group not empty {
    check(%netfw_rule_group.Properties)
    
    [CT.NETWORK-FIREWALL.PR.4]: Require any AWS Network Firewall rule group to contain at least one rule
    [FIX]: Provide one or more AWS Network Firewall stateless rules within the 'RuleGroup.RulesSource.StatelessRulesAndCustomActions.StatelessRules' property.
    >>
}

rule netfw_stateless_rule_group_not_empty_check when is_cfn_hook(%INPUT_DOCUMENT, %NETFW_RULE_GROUP_TYPE) {
    check(%INPUT_DOCUMENT.%NETFW_RULE_GROUP_TYPE.resourceProperties)
    
    [CT.NETWORK-FIREWALL.PR.4]: Require any AWS Network Firewall rule group to contain at least one rule
    [FIX]: Provide one or more AWS Network Firewall stateless rules within the 'RuleGroup.RulesSource.StatelessRulesAndCustomActions.StatelessRules' property.
    >>
}

# Parameterized Rules
#
rule check(netfw_rule_group) {

Proactive controls
%netfw_rule_group[  # Scenario 2  Type exists  Type == "STATELESS"
] {  # Scenario 3  RuleGroup exists  RuleGroup is_struct  RuleGroup {  
RulesSource exists  RulesSource is_struct  RulesSource {  
StatelessRulesAndCustomActions exists  StatelessRulesAndCustomActions is_struct  StatelessRulesAndCustomActions {  
# Scenarios 4 and 5  StatelessRules exists  StatelessRules is_list  StatelessRules not empty  
}  
}  
}  
}  

#  # Utility Rules  
rule is_cfn_template(doc) {  
%doc {  
    AWSTemplateFormatVersion exists or  
    Resources exists  
}  
}  

rule is_cfn_hook(doc, RESOURCE_TYPE) {  
%doc.%RESOURCE_TYPE.resourceProperties exists  
}
CT.NETWORK-FIREWALL.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
    NetworkFirewallRuleGroup:
        Type: AWS::NetworkFirewall::RuleGroup
        Properties:
            RuleGroupName:
                Fn::Sub: ${AWS::StackName}-example
            Capacity: 100
            Description: Example rule group
            Type: STATELESS
            RulesSource:
                StatelessRulesAndCustomActions:
                    StatelessRules:
                        - RuleDefinition:
                            MatchAttributes:
                                Sources:
                                    - AddressDefinition: 0.0.0.0/0
                                Destinations:
                                    - AddressDefinition: 10.0.0.0/8
                                SourcePorts:
                                    - FromPort: 15000
                                    - ToPort: 30000
                                DestinationPorts:
                                    - FromPort: 443
                                    - ToPort: 443
                                Protocols:
                                    - 6
                                Actions:
                                    - aws:forward_to_sfe
                            Priority: 1
```

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

```
```

Proactive controls
Resources:

NetworkFirewallRuleGroup:
  Type: AWS::NetworkFirewall::RuleGroup
  Properties:
    RuleGroupName:
      Fn::Sub: ${AWS::StackName}-example
    Capacity: 100
    Description: Example rule group
    Type: STATELESS
    RuleGroup:
      RulesSource:
        StatelessRulesAndCustomActions:
          StatelessRules: []

[CT.NETWORK-FIREWALL.PR.5] Require an AWS Network Firewall firewall to be deployed across multiple Availability Zones

This control checks whether an AWS Network Firewall firewall is deployed across multiple Availability Zones (AZs), to permit automatic failover between AZs.

- **Control objective:** Improve resiliency
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::NetworkFirewall::Firewall
- **AWS CloudFormation guard rule:** [CT.NETWORK-FIREWALL.PR.5 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.NETWORK-FIREWALL.PR.5 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.NETWORK-FIREWALL.PR.5 example templates](#)

Explanation
The AWS global infrastructure is built around AWS Regions and Availability Zones. AWS Regions provide multiple Availability Zones (AZs), physically separated and isolated. These AZs are connected by low-latency, high-throughput, and highly redundant networking. You can design and operate applications and databases that fail over between Availability Zones without interruption, automatically. Availability Zones are more highly available, fault tolerant, and scalable than traditional single- or multiple-datacenter infrastructures.

**Remediation for rule failure**

In the SubnetMappings parameter, provide at least two entries that refer to subnets in different Availability Zones.

The examples that follow show how to implement this remediation.

**AWS Network Firewall Firewall - Example**

An AWS Network Firewall firewall configured to deploy across two subnets in different Availability Zones. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "Firewall": {
        "Type": "AWS::NetworkFirewall::Firewall",
        "Properties": {
            "FirewallName": "SampleFirewall",
            "FirewallPolicyArn": {
                "Ref": "FirewallPolicy"
            },
            "VpcId": {
                "Ref": "VPC"
            },
            "Description": "Sample firewall",
            "SubnetMappings": [
                {
                    "SubnetId": {
                        "Ref": "SubnetOne"
                    }
                },
                {
                    "SubnetId": {
                        "Ref": "SubnetTwo"
                    }
                }
            ]
    }
}
```
YAML example

Firewall:
  Type: AWS::NetworkFirewall::Firewall
  Properties:
    FirewallName: SampleFirewall
    FirewallPolicyArn: !Ref 'FirewallPolicy'
    VpcId: !Ref 'VPC'
    Description: Sample firewall
    SubnetMappings:
      - SubnetId: !Ref 'SubnetOne'
      - SubnetId: !Ref 'SubnetTwo'

CT.NETWORK-FIREWALL.PR.5 rule specification

# ###################################################################
##       Rule Specification        ##
# ###################################################################
#
# Rule Identifier:
#   netfw_multi_az_enabled_check
#
# Description:
#   This control checks whether an AWS Network Firewall firewall is deployed across multiple Availability Zones (AZs), to permit automatic failover between AZs.
#
# Reports on:
#   AWS::NetworkFirewall::Firewall
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook

Proactive controls
# Rule Parameters:
# None
# 
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any Network Firewall firewall resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Network Firewall firewall resource
# And: 'SubnetMappings' has not been specified or specified as an empty list
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Network Firewall firewall resource
# And: 'SubnetMappings' has been specified
# And: The number of entries in 'SubnetMappings' is less than two (< 2)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Network Firewall firewall resource
# And: 'SubnetMappings' has been specified
# And: The number of entries in 'SubnetMappings' is greater than or equal to two (>= 2)
# Then: PASS

# Constants
# let NETFW_FIREWALL_FIREWALL_TYPE = "AWS::NetworkFirewall::Firewall"
let INPUT_DOCUMENT = this

# Assignments
# let netfw_firewalls = Resources.*[ Type == %NETFW_FIREWALL_FIREWALL_TYPE ]
# Primary Rules

rule netfw_multi_az_enabled_check when is_cfn_template(%INPUT_DOCUMENT)

  %netfw_firewalls not empty {
    check(%netfw_firewalls.Properties)
    <<
    [CT.NETWORK-FIREWALL.PR.5]: Require an AWS Network Firewall firewall to be deployed across multiple Availability Zones
    [FIX]: In the SubnetMappings parameter, provide at least two entries that refer to subnets in different Availability Zones.
    >>
  }

rule netfw_multi_az_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %NETFW_FIREWALL_FIREWALL_TYPE) {
  check(%INPUT_DOCUMENT.%NETFW_FIREWALL_FIREWALL_TYPE.resourceProperties)
  <<
  [CT.NETWORK-FIREWALL.PR.5]: Require an AWS Network Firewall firewall to be deployed across multiple Availability Zones
  [FIX]: In the SubnetMappings parameter, provide at least two entries that refer to subnets in different Availability Zones.
  >>
}

# Parameterized Rules

rule check(netfw_firewall) {
  %netfw_firewall {
    # Scenario 2
    SubnetMappings exists
    SubnetMappings is_list
    SubnetMappings not empty

    # Scenarios 3 and 4
    SubnetMappings[0] exists
    SubnetMappings[1] exists
  }
}

# Utility Rules

Proactive controls
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.NETWORK-FIREWALL.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone: 
      Fn::Select:
        - 0
        - Fn::GetAZs: ""
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
SubnetOne:
  Type: AWS::EC2::Subnet
Properties:
  VpcId:
    Ref: VPC
  CidrBlock: 10.0.0.0/24
  AvailabilityZone:
    Fn::Select:
      - 0
      - Fn::GetAZs: ""
FirewallPolicy:
  Type: AWS::NetworkFirewall::FirewallPolicy
  Properties:
    FirewallPolicyName:
      Fn::Sub: ${AWS::StackName}-example-firewall-policy
FirewallPolicy:
  StatelessDefaultActions:
    - aws:forward_to_sfe
  StatelessFragmentDefaultActions:
    - aws:forward_to_sfe
  Description: Example firewall policy
Firewall:
  Type: AWS::NetworkFirewall::Firewall
  Properties:
    FirewallName:
      Fn::Sub: ${AWS::StackName}-example-firewall
    FirewallPolicyArn:
      Ref: FirewallPolicy
    VpcId:
      Ref: VPC
    Description: Example firewall
    SubnetMappings:
      - SubnetId:
          Ref: SubnetOne

Amazon OpenSearch controls

Topics

- [CT.OPENSEARCH.PR.1] Require an Elasticsearch domain to encrypt data at rest
- [CT.OPENSEARCH.PR.2] Require an Elasticsearch domain to be created in a user-specified Amazon VPC
- [CT.OPENSEARCH.PR.3] Require an Elasticsearch domain to encrypt data sent between nodes
• [CT.OPENSEARCH.PR.4] Require an Elasticsearch domain to send error logs to Amazon CloudWatch Logs
• [CT.OPENSEARCH.PR.5] Require an Elasticsearch domain to send audit logs to Amazon CloudWatch Logs
• [CT.OPENSEARCH.PR.6] Require an Elasticsearch domain to have zone awareness and at least three data nodes
• [CT.OPENSEARCH.PR.7] Require an Elasticsearch domain to have at least three dedicated master nodes
• [CT.OPENSEARCH.PR.8] Require an Elasticsearch Service domain to use TLSv1.2
• [CT.OPENSEARCH.PR.9] Require an Amazon OpenSearch Service domain to encrypt data at rest
• [CT.OPENSEARCH.PR.10] Require an Amazon OpenSearch Service domain to be created in a user-specified Amazon VPC
• [CT.OPENSEARCH.PR.11] Require an Amazon OpenSearch Service domain to encrypt data sent between nodes
• [CT.OPENSEARCH.PR.12] Require an Amazon OpenSearch Service domain to send error logs to Amazon CloudWatch Logs
• [CT.OPENSEARCH.PR.13] Require an Amazon OpenSearch Service domain to send audit logs to Amazon CloudWatch Logs
• [CT.OPENSEARCH.PR.14] Require an Amazon OpenSearch Service domain to have zone awareness and at least three data nodes
• [CT.OPENSEARCH.PR.15] Require an Amazon OpenSearch Service domain to use fine-grained access control
• [CT.OPENSEARCH.PR.16] Require an Amazon OpenSearch Service domain to use TLSv1.2

[CT.OPENSEARCH.PR.1] Require an Elasticsearch domain to encrypt data at rest

This control checks whether Elasticsearch domains have encryption-at-rest enabled.

• **Control objective:** Encrypt data at rest
• **Implementation:** AWS CloudFormation guard rule
• **Control behavior:** Proactive
• **Resource types:** AWS::Elasticsearch::Domain
• **AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.1 rule specification](#)
Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.1 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.1 example templates](#)

Explanation

For an added layer of security for your sensitive data in OpenSearch, you should configure your OpenSearch to be encrypted at rest. Elasticsearch domains offer encryption of data at rest. The feature uses AWS KMS to store and manage your encryption keys. To perform the encryption, it uses the Advanced Encryption Standard algorithm with 256-bit keys (AES-256).

Remediation for rule failure

Within `EncryptionAtRestOptions`, set `Enabled` to `true`.

The examples that follow show how to implement this remediation.

Elasticsearch Domain - Example

An Elasticsearch domain configured with encryption-at-rest enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "ElasticsearchDomain": {
    "Type": "AWS::Elasticsearch::Domain",
    "Properties": {
      "ElasticsearchVersion": 7.1,
      "ElasticsearchClusterConfig": {
        "InstanceCount": "1",
        "InstanceType": "t3.small.elasticsearch"
      },
      "EBSOptions": {
        "EBSEnabled": true,
        "Iops": "3000",
        "VolumeSize": "10",
    
```
"VolumeType": "gp3",
"AccessPolicies": {
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Deny",
            "Principal": {
                "AWS": "*"
            },
            "Action": "es:*",
            "Resource": "*"
        }
    ]
},
"EncryptionAtRestOptions": {
 "Enabled": true
}
}

**YAML example**

```
ElasticsearchDomain:
    Type: AWS::Elasticsearch::Domain
    Properties:
        ElasticsearchVersion: 7.1
        ElasticsearchClusterConfig:
            InstanceCount: '1'
            InstanceType: t3.small.elasticsearch
        EBSOptions:
            EBSEnabled: true
            Iops: '3000'
            VolumeSize: '10'
            VolumeType: gp3
        AccessPolicies:
            Version: '2012-10-17'
            Statement:
                - Effect: Deny
                  Principal:
```
CT.OPENSEARCH.PR.1 rule specification

# ###################################################################################################################
##       Rule Specification      ##
###################################################################################################################
#
# Rule Identifier:  
#   elasticsearch_encrypted_at_rest_check
#
# Description:  
#   This control checks whether Elasticsearch domains have encryption-at-rest enabled.  
#
# Reports on:  
#   AWS::Elasticsearch::Domain
#
# Evaluates:  
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:  
#   None
#
# Scenarios:  
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Elasticsearch domain resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elasticsearch domain resource
#     And: 'EncryptionAtRestOptions' has not been provided
#     Then: FAIL
#   Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elasticsearch domain resource
And: 'EncryptionAtRestOptions' has been provided
And: 'Enabled' in 'EncryptionAtRestOptions' has not been provided or provided and set to a value other than bool(true)
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elasticsearch domain resource
And: 'EncryptionAtRestOptions' has been provided
And: 'Enabled' in 'EncryptionAtRestOptions' has been provided and set to bool(true)
Then: PASS

Constants

let ELASTICSEARCH_DOMAIN_TYPE = "AWS::Elasticsearch::Domain"
let INPUT_DOCUMENT = this

Assignments

let elasticsearch_domains = Resources.*[ Type == %ELASTICSEARCH_DOMAIN_TYPE ]

Primary Rules

rule elasticsearch_encrypted_at_rest_check when is_cfn_template(%INPUT_DOCUMENT)
%elasticsearch_domains not empty {
  check(%elasticsearch_domains.Properties)
  %elasticsearch_domains not empty {
    [CT.OPENSEARCH.PR.1]: Require an Elasticsearch domain to encrypt data at rest
    [FIX]: Within 'EncryptionAtRestOptions', set 'Enabled' to 'true'.
    
  }
}

rule elasticsearch_encrypted_at_rest_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTICSEARCH_DOMAIN_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTICSEARCH_DOMAIN_TYPE.resourceProperties)
  %
  [CT.OPENSEARCH.PR.1]: Require an Elasticsearch domain to encrypt data at rest
  
}
[FIX]: Within 'EncryptionAtRestOptions', set 'Enabled' to 'true'.

>`>
>
>
>'

# Parameterized Rules

# rule check(elasticsearch_domain) {
  %elasticsearch_domain {
    # Scenario 2
    EncryptionAtRestOptions exists
    EncryptionAtRestOptions is_struct

    EncryptionAtRestOptions {
      # Scenarios 3 and 4
      Enabled exists
      Enabled == true
    }
  }
}

#

# Utility Rules

# rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

**CT.OPENSEARCH.PR.1 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
Properties:
  ElasticsearchVersion: 7.1
  ElasticsearchClusterConfig:
    InstanceCount: '1'
    InstanceType: t3.small.elasticsearch
  EBSOptions:
    EBSEnabled: true
    Iops: '3000'
    VolumeSize: '10'
    VolumeType: gp3
  AccessPolicies:
    Version: '2012-10-17'
    Statement:
      - Effect: Deny
        Principal:
          AWS: '*'
        Action: es:*
        Resource: '*'
  EncryptionAtRestOptions:
    Enabled: true

Proactive controls
[CT.OPENSEARCH.PR.2] Require an Elasticsearch domain to be created in a user-specified Amazon VPC

This control checks whether Elasticsearch domains are configured with VPC option settings that specify a target Amazon VPC.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Elasticsearch::Domain
- **AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.2 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.2 example templates](#)

Explanation

Elasticsearch domains deployed within a VPC can communicate with VPC resources over the private AWS network, without the need to traverse the public internet. This configuration increases the security posture by limiting access to the data in transit. VPCs provide a number of network...
controls that help create secure access to Elasticsearch domains, including network ACLs and security groups. Security Hub recommends that you migrate public Elasticsearch domains to VPCs to take advantage of these controls.

**Remediation for rule failure**

Within VPCOptions, set SubnetIds to a list with one or more Amazon EC2 subnet IDs.

The examples that follow show how to implement this remediation.

**Elasticsearch Domain - Example**

An Elasticsearch domain configured to deploy within an Amazon VPC by means of VPC option settings. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "ElasticsearchDomain": {
    "Type": "AWS::Elasticsearch::Domain",
    "Properties": {
      "ElasticsearchVersion": 7.1,
      "ElasticsearchClusterConfig": {
        "InstanceCount": "1",
        "InstanceType": "t3.small.elasticsearch"
      },
      "EBSOptions": {
        "EBSEnabled": true,
        "Iops": "3000",
        "VolumeSize": "10",
        "VolumeType": "gp3"
      },
      "AccessPolicies": {
        "Version": "2012-10-17",
        "Statement": [
          {
            "Effect": "Deny",
            "Principal": {
              "AWS": "*"
            },
            "Action": "es:*",
            "Resource": "*"
          }
        ]
      }
    }
  }
}
```
YAML example

ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    VPCOptions:
      SubnetIds:
        - !Ref 'Subnet'
CT.OPENSEARCH.PR.2 rule specification

# ###################################
##       Rule Specification        ##
#####################################
#
# Rule Identifier:
#   elasticsearch_in_vpc_only_check
#
# Description:
#   This control checks whether Elasticsearch domains are configured with VPC option settings that specify a target Amazon VPC.
#
# Reports on:
#   AWS::Elasticsearch::Domain
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Elasticsearch domain resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elasticsearch domain resource
#     And: 'VPCOptions' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elasticsearch domain resource
#     And: 'VPCOptions' has been provided
#     And: 'SubnetIds' in 'VPCOptions' has not been provided or has been provided as an empty list
#     Then: FAIL
#   Scenario: 4
## Proactive controls

### 1708
# Parameterized Rules

```
rule check(elasticsearch_domain) {
    %elasticsearch_domain {
        # Scenario 2
        VPCOptions exists
        VPCOptions is_struct

        VPCOptions {
            # Scenarios 3 and 4
            SubnetIds exists
            SubnetIds is_list
            SubnetIds not empty
        }
    }
}
```

# Utility Rules

```
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
```

```
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

CT.OPENSEARCH.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

VPC:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Resources:

ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
Properties:
  ElasticsearchVersion: 7.1
  ElasticsearchClusterConfig:
    InstanceCount: '1'
    InstanceType: t3.small.elasticsearch
  EBSOptions:
    EBSEnabled: true
    Iops: '3000'
    VolumeSize: '10'
    VolumeType: gp3
AccessPolicies:
  Version: '2012-10-17'
  Statement:
    - Effect: Deny
      Principal:
        AWS: '*'
      Action: es:*
      Resource: '*'

[CT.OPENSEARCH.PR.3] Require an Elasticsearch domain to encrypt data sent between nodes

This control checks whether Elasticsearch domains have node-to-node encryption enabled.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Elasticsearch::Domain
- **AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.3 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.3 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.3 example templates](#)
Explanation

HTTPS (TLS) can help prevent potential attackers from eavesdropping on or manipulating network traffic using person-in-the-middle, or similar, attacks. Only encrypted connections over HTTPS (TLS) should be allowed. Enabling node-to-node encryption for Elasticsearch domains ensures that intra-cluster communications are encrypted in transit.

Usage considerations

- A performance penalty may be associated with this configuration. You should be aware of and test the performance trade-offs before enabling this option.

Remediation for rule failure

Within NodeToNodeEncryptionOptions, set Enabled to true.

The examples that follow show how to implement this remediation.

Elasticsearch Domain - Example

An Elasticsearch domain configured with node-to-node encryption enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
   "ElasticsearchDomain": {
      "Type": "AWS::Elasticsearch::Domain",
      "Properties": {
         "ElasticsearchVersion": 7.1,
         "ElasticsearchClusterConfig": {
            "InstanceCount": "1",
            "InstanceType": "t3.small.elasticsearch"
         },
         "EBSOptions": {
            "EBSEnabled": true,
            "Iops": "3000",
            "VolumeSize": "10",
            "VolumeType": "gp3"
         }
      }
   }
}
```
YAML example

```
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
```
Action: es:*  
Resource: '*'  
NodeToNodeEncryptionOptions: 
   Enabled: true

---

CT.OPENSEARCH.PR.3 rule specification

```plaintext
# ###################################################################
##       Rule Specification        ##
#########################################################################
#
# Rule Identifier:
#   elasticsearch_node_to_node_encryption_check
#
# Description:
#   This control checks whether Elasticsearch domains have node-to-node encryption enabled.
#
# Reports on:
#   AWS::Elasticsearch::Domain
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#      Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#      And: The input document does not contain any Elasticsearch domain resources
#      Then: SKIP
#   Scenario: 2
#      Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#      And: The input document contains an Elasticsearch domain resource
#      And: 'NodeToNodeEncryptionOptions' has not been provided
#      Then: FAIL
#   Scenario: 3
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'NodeToNodeEncryptionOptions' has been provided
# And: 'Enabled' in 'NodeToNodeEncryptionOptions' has not been provided or has been provided
#      and set to a value other than bool(true)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'NodeToNodeEncryptionOptions' has been provided
# And: 'Enabled' in 'NodeToNodeEncryptionOptions' has been provided and set to a value of bool(true)
# Then: PASS

# Constants
#
let ELASTICSEARCH_DOMAIN_TYPE = "AWS::Elasticsearch::Domain"
let INPUT_DOCUMENT = this
#
# Assignments
#
let elasticsearch_domains = Resources.*[ Type == %ELASTICSEARCH_DOMAIN_TYPE ]
#
# Primary Rules
#
rule elasticsearch_node_to_node_encryption_check when is_cfn_template(%INPUT_DOCUMENT)
%elasticsearch_domains not empty
{
  check(%elasticsearch_domains.Properties)
  <<
    [CT.OPENSEARCH.PR.3]: Require an Elasticsearch domain to encrypt data sent between nodes
    [FIX]: Within 'NodeToNodeEncryptionOptions', set 'Enabled' to 'true'.
  >>
}

rule elasticsearch_node_to_node_encryption_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTICSEARCH_DOMAIN_TYPE) {
check(%INPUT_DOCUMENT.%ELASTICSEARCH_DOMAIN_TYPE.resourceProperties)

[CT.OPENSEARCH.PR.3]: Require an Elasticsearch domain to encrypt data sent between nodes

[FIX]: Within 'NodeToNodeEncryptionOptions', set 'Enabled' to 'true'.

}

#
# Parameterized Rules
#
rule check(elasticsearch_domain) {
  %elasticsearch_domain {
    # Scenario 2
    NodeToNodeEncryptionOptions exists
    NodeToNodeEncryptionOptions is_struct

    NodeToNodeEncryptionOptions {
      # Scenarios 3 and 4
      Enabled exists
      Enabled == true
    }
  }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.OPENSEARCH.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '**'
    NodeToNodeEncryptionOptions:
      Enabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
ElasticsearchClusterConfig:
  InstanceCount: '1'
  InstanceType: t3.small.elasticsearch
EBSOptions:
  EBSEnabled: true
  Iops: '3000'
  VolumeSize: '10'
  VolumeType: gp3
AccessPolicies:
  Version: '2012-10-17'
  Statement:
    - Effect: Deny
      Principal:
        AWS: '*'
      Action: es:*
      Resource: '*'
  NodeToNodeEncryptionOptions: {}
Explanation

Enable error logs (ES_APPLICATION_LOGS) for Elasticsearch domains and send those logs to CloudWatch Logs for retention and response. Domain error logs can assist with security and access audits, and can help to diagnose availability issues.

Remediation for rule failure

Within LogPublishingOptions, provide an ES_APPLICATION_LOGS configuration, set Enabled to true, and set CloudWatchLogsLogGroupArn to the ARN of a valid Amazon CloudWatch Logs log group.

The examples that follow show how to implement this remediation.

Elasticsearch Domain - Example

An Elasticsearch domain configured to send error logs to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

JSON example

```json
{
    "ElasticsearchDomain": {
        "Type": "AWS::Elasticsearch::Domain",
        "Properties": {
            "ElasticsearchVersion": 7.1,
            "ElasticsearchClusterConfig": {
                "InstanceCount": "1",
                "InstanceType": "t3.small.elasticsearch"
            },
            "EBSOptions": {
                "EBSEnabled": true,
                "Iops": "3000",
                "VolumeSize": "10",
                "VolumeType": "gp3"
            },
            "AccessPolicies": {
                "Version": "2012-10-17",
                "Statement": [
                    {
                        "Effect": "Deny",
                        "Principal": {
```
YAML example

ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
AWS: '*'
Action: es:*
Resource: '*'
LogPublishingOptions:
  ES_APPLICATION_LOGS:
    CloudWatchLogsLogGroupArn: !GetAtt 'LogGroup.Arn'
    Enabled: true

CT.OPENSEARCH.PR.4 rule specification

# ###################################################################################################
##       Rule Specification        ##
####################################################################################################
#
# Rule Identifier:
#   elasticsearch_application_logging_enabled_check
#
# Description:
#   This control checks whether Elasticsearch domains are configured to send error logs to an Amazon CloudWatch Logs log group.
#
# Reports on:
#   AWS::Elasticsearch::Domain
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Elasticsearch domain resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has been provided
# And: 'ES_APPLICATION_LOGS' in 'LogPublishingOptions' has not been provided
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'ES_APPLICATION_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'ES_APPLICATION_LOGS' has not been provided or provided and set to a value other than bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'ES_APPLICATION_LOGS' has not been provided or provided
# as an empty string or invalid local reference
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'ES_APPLICATION_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'ES_APPLICATION_LOGS' has been provided and set to bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'ES_APPLICATION_LOGS' has not been provided or provided
# as an empty string or invalid local reference
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'ES_APPLICATION_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'ES_APPLICATION_LOGS' has not been provided or provided and set to a value other than bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'ES_APPLICATION_LOGS' has been provided as a non-empty string
# or valid local reference
# Then: FAIL
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'ES_APPLICATION_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'ES_APPLICATION_LOGS' has been provided and set to bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'ES_APPLICATION_LOGS' has been provided as
# a non-empty string
# or valid local reference
# Then: PASS

# Constants
#
let ELASTICSEARCH_DOMAIN_TYPE = "AWS::Elasticsearch::Domain"
let INPUT_DOCUMENT = this
#
# Assignments
#
let elasticsearch_domains = Resources.*[ Type == %ELASTICSEARCH_DOMAIN_TYPE ]
#
# Primary Rules
#
rule elasticsearch_application_logging_enabled_check when
   is_cfn_template(%INPUT_DOCUMENT)
   %elasticsearch_domains not empty {
   check(%elasticsearch_domains.Properties)
   <<<
   [CT.OPENSEARCH.PR.4]: Require an Elasticsearch domain to send error logs to
   Amazon CloudWatch Logs
   [FIX]: Within 'LogPublishingOptions', provide an 'ES_APPLICATION_LOGS'
   configuration, set 'Enabled' to 'true', and set 'CloudWatchLogsLogGroupArn' to the ARN
   of a valid Amazon CloudWatch Logs log group.
   >>>
}

rule elasticsearch_application_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT,
   %ELASTICSEARCH_DOMAIN_TYPE) {
check(%INPUT_DOCUMENT.%ELASTICSEARCH_DOMAIN_TYPE.resourceProperties)
  <<
  [CT.OPENSEARCH.PR.4]: Require an Elasticsearch domain to send error logs to Amazon CloudWatch Logs
  [FIX]: Within 'LogPublishingOptions', provide an 'ES_APPLICATION_LOGS' configuration, set 'Enabled' to 'true', and set 'CloudWatchLogsLogGroupArn' to the ARN of a valid Amazon CloudWatch Logs log group.
  >>
}

# Parameterized Rules
#
rule check(elasticsearch_domain) {
  %elasticsearch_domain {
    # Scenario 2
    LogPublishingOptions exists
    LogPublishingOptions is_struct

    LogPublishingOptions {
      # Scenario 3
      ES_APPLICATION_LOGS exists
      ES_APPLICATION_LOGS is_struct

      ES_APPLICATION_LOGS {
        # Scenarios 4, 5, 6 and 7
        Enabled exists
        Enabled == true

        CloudWatchLogsLogGroupArn exists
        check_is_string_and_not_empty(CloudWatchLogsLogGroupArn) or
        check_local_references(%INPUT_DOCUMENT, CloudWatchLogsLogGroupArn, "AWS::Logs::LogGroup")
      }
    }
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
CT.OPENSEARCH.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
Resources:
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  DependsOn: LogGroupPolicy
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
  EBSOptions:
    EBSEnabled: true
    Iops: '3000'
    VolumeSize: '10'
    VolumeType: gp3
  AccessPolicies:
    Version: '2012-10-17'
    Statement:
      - Effect: Deny
        Principal:
          AWS: '*'
        Action: es:*
        Resource: '*'
  LogPublishingOptions:
    ES_APPLICATION_LOGS:
      CloudWatchLogsLogGroupArn:
        Fn::GetAtt:
          - LogGroup
          - Arn
      Enabled: true
LogGroup:
  Type: AWS::Logs::LogGroup
LogGroupPolicy:
  Type: AWS::Logs::ResourcePolicy
  Properties:
    PolicyName:
      Fn::Sub: ${AWS::StackName}-AllowES
    PolicyDocument:
      Fn::Sub:
        - "Version": "2012-10-17","Statement":[
          {"Effect":"Allow","Principal":
          {"Service": ["es.amazonaws.com"]},"Action":
          ["logs:PutLogEvents","logs:CreateLogStream"],"Resource":"${LogGroupArn}"},
          {"Effect": "Allow", "Principal":
          {"Service": ["cloudwatchlogs.amazonaws.com"]}, "Action":
          ["cloudwatchlogs:PutLogEvents"], "Resource": "${LogGroupArn}"}
        ]"
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ElasticsearchDomain:
   Type: AWS::Elasticsearch::Domain
   Properties:
      ElasticsearchVersion: 7.1
      ElasticsearchClusterConfig:
         InstanceCount: '1'
         InstanceType: t3.small.elasticsearch
      EBSOptions:
         EBSEnabled: true
         Iops: '3000'
         VolumeSize: '10'
         VolumeType: gp3
   AccessPolicies:
      Version: '2012-10-17'
      Statement:
         - Effect: Deny
           Principal:
              AWS: '*'
           Action: es:*
           Resource: '*'
ElasticsearchClusterConfig:
  InstanceCount: '1'
  InstanceType: t3.small.elasticsearch
EBSOptions:
  EBSEnabled: true
  Iops: '3000'
  VolumeSize: '10'
  VolumeType: gp3
AccessPolicies:
  Version: '2012-10-17'
  Statement:
    - Effect: Deny
      Principal:
        AWS: '*'
      Action: es:*
      Resource: '*'
LogPublishingOptions:
  ES_APPLICATION_LOGS:
    Enabled: false

[CT.OPENSEARCH.PR.5] Require an Elasticsearch domain to send audit logs to Amazon CloudWatch Logs

This control checks whether Elasticsearch domains are configured to send audit logs to an Amazon CloudWatch Logs log group.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Elasticsearch::Domain
- **AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.5 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the:  
  [CT.OPENSEARCH.PR.5 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see:  
  [CT.OPENSEARCH.PR.5 example templates](#)
Audit logs are highly customizable. They allow you to track user activity on your Elasticsearch clusters, including authentication successes and failures, requests to OpenSearch, index changes, and incoming search queries.

### Usage considerations

- This control requires that Elasticsearch domains must have advanced security options configured.
- To enable advanced security options on an Elasticsearch domain through the `AdvancedSecurityOptions` property, you must enable encryption of data at rest (by means of `EncryptionAtRestOptions`), node-to-node encryption (by means of `NodeToNodeEncryptionOptions`), and enforce HTTPS connections (by means of `DomainEndpointOptions`).

### Remediation for rule failure

Within `LogPublishingOptions`, provide an `AUDIT_LOGS` configuration, set `Enabled` to `true`, and set `CloudWatchLogsLogGroupArn` to the ARN of a valid Amazon CloudWatch Logs log group.

The examples that follow show how to implement this remediation.

**Elasticsearch Domain - Example**

An Elasticsearch domain configured to send audit logs to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ElasticsearchDomain": {
        "Type": "AWS::Elasticsearch::Domain",
        "Properties": {
            "ElasticsearchVersion": 7.1,
            "ElasticsearchClusterConfig": {
                "InstanceCount": "1",
                "InstanceType": "t3.small.elasticsearch"
            }
        }
    }
}
```
},
"EBSOptions": {
  "EBSEnabled": true,
  "Iops": "3000",
  "VolumeSize": "10",
  "VolumeType": "gp3"
},
"AccessPolicies": {
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Deny",
      "Principal": {
        "AWS": "*
      },
      "Action": "es:*",
      "Resource": "*"
    }
  ]
},
"NodeToNodeEncryptionOptions": {
  "Enabled": true
},
"EncryptionAtRestOptions": {
  "Enabled": true
},
"DomainEndpointOptions": {
  "EnforceHTTPS": true
},
"AdvancedSecurityOptions": {
  "Enabled": true,
  "InternalUserDatabaseEnabled": false,
  "MasterUserOptions": {
    "MasterUserARN": {
      "Fn::GetAtt": [
        "IAMRole",
        "Arn"
      ]
    }
  }
},
"LogPublishingOptions": {
  "AUDIT_LOGS": {
    "CloudWatchLogsLogGroupArn": {
.
YAML example

```yaml
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    NodeToNodeEncryptionOptions:
      Enabled: true
    EncryptionAtRestOptions:
      Enabled: true
    DomainEndpointOptions:
      EnforceHTTPS: true
    AdvancedSecurityOptions:
```

Proactive controls
Enabled: true
InternalUserDatabaseEnabled: false
MasterUserOptions:
  MasterUserARN: !GetAtt 'IAMRole.Arn'
LogPublishingOptions:
  AUDIT_LOGS:
    CloudWatchLogsLogGroupArn: !GetAtt 'LogGroup.Arn'
    Enabled: true

CT.OPENSEARCH.PR.5 rule specification

# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   elasticsearch_audit_logging_enabled_check
#
# Description:
#   This control checks whether Elasticsearch domains are configured to send audit logs
to an Amazon CloudWatch Logs log group.
#
# Reports on:
#   AWS::Elasticsearch::Domain
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Elasticsearch domain resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has been provided
# And: 'AUDIT_LOGS' in 'LogPublishingOptions' has not been provided
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'AUDIT_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'AUDIT_LOGS' has not been provided or provided and set to a value other than bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'AUDIT_LOGS' has not been provided or provided as an empty string or invalid local reference
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'AUDIT_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'AUDIT_LOGS' has been provided and set to bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'AUDIT_LOGS' has not been provided or provided as an empty string or invalid local reference
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'AUDIT_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'AUDIT_LOGS' has not been provided or provided and set to a value other than bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'AUDIT_LOGS' has been provided as a non-empty string or valid local reference
# Given: The input document contains an Elasticsearch domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'AUDIT_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'AUDIT_LOGS' has been provided and set to bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'AUDIT_LOGS' has been provided as a non-empty string
# or valid local reference
# Then: PASS

# Constants
#
let ELASTICSEARCH_DOMAIN_TYPE = "AWS::Elasticsearch::Domain"
let INPUT_DOCUMENT = this

# Assignments
#
let elasticsearch_domains = Resources.*[ Type == %ELASTICSEARCH_DOMAIN_TYPE ]

# Primary Rules
#
rule elasticsearch_audit_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%elasticsearch_domains not empty {
  check(%elasticsearch_domains.Properties)
  %elasticsearch_domains not empty {
    [CT.OPENSEARCH.PR.5]: Require an Elasticsearch domain to send audit logs to Amazon CloudWatch Logs
    [FIX]: Within 'LogPublishingOptions', provide an 'AUDIT_LOGS' configuration, set 'Enabled' to 'true', and set 'CloudWatchLogsLogGroupArn' to the ARN of a valid Amazon CloudWatch Logs log group.
    >>
  }
}

rule elasticsearch_audit_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT,
%ELASTICSEARCH_DOMAIN_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTICSEARCH_DOMAIN_TYPE.resourceProperties)
  <<
[CT.OPENSEARCH.PR.5]: Require an Elasticsearch domain to send audit logs to Amazon CloudWatch Logs

[FIX]: Within 'LogPublishingOptions', provide an 'AUDIT_LOGS' configuration, set 'Enabled' to 'true', and set 'CloudWatchLogsLogGroupArn' to the ARN of a valid Amazon CloudWatch Logs log group.

```plaintext

rule check(elasticsearch_domain) {
  %elasticsearch_domain {
    # Scenario 2
    LogPublishingOptions exists
    LogPublishingOptions is_struct

    LogPublishingOptions {
      # Scenario 3
      AUDIT_LOGS exists
      AUDIT_LOGS is_struct

      AUDIT_LOGS {
        # Scenarios 4, 5, 6 and 7
        Enabled exists
        Enabled == true

        CloudWatchLogsLogGroupArn exists
        check_is_string_and_not_empty(CloudWatchLogsLogGroupArn) or
        check_local_references(%INPUT_DOCUMENT, CloudWatchLogsLogGroupArn,
        "AWS::Logs::LogGroup")
      }
    }
  }
}
```

# Utility Rules

```plaintext

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```
CT.OPENSEARCH.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS:
              Ref: AWS::AccountId
          Action: sts:AssumeRole
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  DependsOn: LogGroupPolicy
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    NodeToNodeEncryptionOptions:
      Enabled: true
    EncryptionAtRestOptions:
      Enabled: true
    DomainEndpointOptions:
      EnforceHTTPS: true
    AdvancedSecurityOptions:
      Enabled: true
      InternalUserDatabaseEnabled: false
    MasterUserOptions:
      MasterUserARN:
        Fn::GetAtt:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS:
              Ref: AWS::AccountId
          Action: sts:AssumeRole
Type: AWS::Elasticsearch::Domain

Properties:
  ElasticsearchVersion: 7.1
  ElasticsearchClusterConfig:
    InstanceCount: '1'
    InstanceType: t3.small.elasticsearch
  EBSOptions:
    EBSEnabled: true
    Iops: '3000'
    VolumeSize: '10'
    VolumeType: gp3
  AccessPolicies:
    Version: '2012-10-17'
    Statement:
      - Effect: Deny
        Principal:
          AWS: '*'
        Action: es:*'
        Resource: '*'
  NodeToNodeEncryptionOptions:
    Enabled: true
  EncryptionAtRestOptions:
    Enabled: true
  DomainEndpointOptions:
    EnforceHTTPS: true
  AdvancedSecurityOptions:
    Enabled: true
    InternalUserDatabaseEnabled: false
  MasterUserOptions:
    MasterUserARN:
      Fn::GetAtt:
        - IAMRole
        - Arn

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  IAMRole:
    Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
        AWS:
          Ref: AWS::AccountId
        Action: sts:AssumeRole

ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    NodeToNodeEncryptionOptions:
      Enabled: true
    EncryptionAtRestOptions:
      Enabled: true
    DomainEndpointOptions:
      EnforceHTTPS: true
    AdvancedSecurityOptions:
      Enabled: true
      InternalUserDatabaseEnabled: false
    MasterUserOptions:
      MasterUserARN:
        Fn::GetAtt:
        - IAMRole
        - Arn
    LogPublishingOptions:
[CT.OPENSEARCH.PR.6] Require an Elasticsearch domain to have zone awareness and at least three data nodes

This control checks whether ElasticSearch domains are configured with at least three data nodes and zone awareness enabled.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Elasticsearch::Domain
- **AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.6 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.6 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.6 example templates](#)

**Explanation**

An Elasticsearch domain requires at least three data nodes for high availability and fault-tolerance. Deploying an Elasticsearch domain with at least three data nodes ensures that cluster operations can continue if a node fails.

**Remediation for rule failure**

Within ElasticsearchClusterConfig, set ZoneAwarenessEnabled to true, and set InstanceCount to an integer value greater than or equal to three.

The examples that follow show how to implement this remediation.
Elasticsearch Domain - Example

An Elasticsearch domain configured with three data nodes and zone awareness enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ElasticsearchDomain": {
        "Type": "AWS::Elasticsearch::Domain",
        "Properties": {
            "ElasticsearchVersion": 7.1,
            "EBSOptions": {
                "EBSEnabled": true,
                "Iops": "3000",
                "VolumeSize": "10",
                "VolumeType": "gp3"
            },
            "AccessPolicies": {
                "Version": "2012-10-17",
                "Statement": [
                    {
                        "Effect": "Deny",
                        "Principal": {
                            "AWS": "*
                        },
                        "Action": "es:*",
                        "Resource": "*
                    }
                ]
            }
        },
        "ElasticsearchClusterConfig": {
            "InstanceType": "t3.small.elasticsearch",
            "InstanceCount": 3,
            "ZoneAwarenessEnabled": true,
            "ZoneAwarenessConfig": {
                "AvailabilityZoneCount": 3
            }
        }
    }
}
```
YAML example

ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
  AccessPolicies:
    Version: '2012-10-17'
    Statement:
      - Effect: Deny
        Principal:
          AWS: '*'
        Action: es:*
        Resource: '*'
  ElasticsearchClusterConfig:
    InstanceType: t3.small.elasticsearch
    InstanceCount: 3
    ZoneAwarenessEnabled: true
    ZoneAwarenessConfig:
      AvailabilityZoneCount: 3

CT.OPENSEARCH.PR.6 rule specification

# ######################################################################
## Rule Specification     ##
# ######################################################################
#
# Rule Identifier:          
#   elasticsearch_data_node_fault_tolerance_check
#
# Description:
This control checks whether Elasticsearch domains are configured with at least three data nodes and zone awareness enabled.

# Reports on:
# AWS::Elasticsearch::Domain

# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any Elasticsearch domain resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'ElasticsearchClusterConfig' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'ElasticsearchClusterConfig' has been provided
# And: 'ZoneAwarenessEnabled' in 'ElasticsearchClusterConfig' has not been provided
# or provided and set to a value other than bool(true)
# And: 'InstanceCount' in 'ElasticsearchClusterConfig' has not been provided or
# provided and set to an integer value less than three (< 3)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'ElasticsearchClusterConfig' has been provided
# And: 'ZoneAwarenessEnabled' in 'ElasticsearchClusterConfig' has been provided
# and set to bool(true)
# And: 'InstanceCount' in 'ElasticsearchClusterConfig' has not been provided or
# provided and set to an integer value less than three (< 3)
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'ElasticsearchClusterConfig' has been provided
# And: 'ZoneAwarenessEnabled' in 'ElasticsearchClusterConfig' has not been provided or provided and set to a value other than bool(true)
# And: 'InstanceCount' in 'ElasticsearchClusterConfig' has been provided and set to an integer value greater than or equal to three (>= 3)
# Then: FAIL

# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Elasticsearch domain resource
# And: 'ElasticsearchClusterConfig' has been provided
# And: 'ZoneAwarenessEnabled' in 'ElasticsearchClusterConfig' has been provided and set to bool(true)
# And: 'InstanceCount' in 'ElasticsearchClusterConfig' has been provided and set to an integer value greater than or equal to three (>= 3)
# Then: PASS

# Constants

let ELASTICSEARCH_DOMAIN_TYPE = "AWS::Elasticsearch::Domain"
let INPUT_DOCUMENT = this

# Assignments

let elasticsearch_domains = Resources.*[ Type == %ELASTICSEARCH_DOMAIN_TYPE ]

# Primary Rules

rule elasticsearch_data_node_fault_tolerance_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %elasticsearch_domains not empty {
    check(%elasticsearch_domains.Properties)
rule elasticsearch_data_node_fault_tolerance_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTICSEARCH_DOMAIN_TYPE) {
    check(%INPUT_DOCUMENT.%ELASTICSEARCH_DOMAIN_TYPE.resourceProperties)
    =>
    [CT.OPENSEARCH.PR.6]: Require an Elasticsearch domain to have zone awareness and at least three data nodes
    [FIX]: Within 'ElasticsearchClusterConfig', set 'ZoneAwarenessEnabled' to 'true', and set 'InstanceCount' to an integer value greater than or equal to three.
    =>
}

# Parameterized Rules
#
rule check(elasticsearch_domain) {
    %elasticsearch_domain {
        # Scenario 2
        ElasticsearchClusterConfig exists
        ElasticsearchClusterConfig is_struct

        ElasticsearchClusterConfig {
            # Scenario 3, 4, 5 and 6
            ZoneAwarenessEnabled exists
            ZoneAwarenessEnabled == true

            InstanceCount exists
            InstanceCount >= 3
        }
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
CT.OPENSEARCH.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
      - Effect: Deny
        Principal:
          AWS: '*'
        Action: es:*
        Resource: '*'
    ElasticsearchClusterConfig:
      InstanceType: t3.small.elasticsearch
      InstanceCount: 3
      ZoneAwarenessEnabled: true
      ZoneAwarenessConfig:
        AvailabilityZoneCount: 3
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
Properties:
  ElasticsearchVersion: 7.1
EBSOptions:
  EBSEnabled: true
  Iops: '3000'
  VolumeSize: '10'
  VolumeType: gp3
AccessPolicies:
  Version: '2012-10-17'
  Statement:
    - Effect: Deny
      Principal:
        AWS: '*'
      Action: es:*
      Resource: '*'
ElasticsearchClusterConfig:
  InstanceType: t3.small.elasticsearch
  ZoneAwarenessEnabled: false
  InstanceCount: 2

[CT.OPENSEARCH.PR.7] Require an Elasticsearch domain to have at least three dedicated master nodes

This control checks whether Elasticsearch domains are configured with at least three dedicated master nodes.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
Resource types: AWS::Elasticsearch::Domain

AWS CloudFormation guard rule: CT.OPENSEARCH.PR.7 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.OPENSEARCH.PR.7 rule specification
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: CT.OPENSEARCH.PR.7 example templates

Explanation

An Elasticsearch domain requires at least three dedicated master nodes for high availability and fault-tolerance. Dedicated master node resources can be strained during data node blue/green deployments, because additional nodes must be managed. Deploying an Elasticsearch domain with at least three dedicated master nodes ensures that sufficient master node resource capacity exists, and that cluster operations can continue if a node fails.

Remediation for rule failure

Within ElasticsearchClusterConfig, set DedicatedMasterEnabled to true, and set DedicatedMasterCount to an integer value greater than or equal to three, or omit the DedicatedMasterCount property to adopt the default value of three.

The examples that follow show how to implement this remediation.

Elasticsearch Domain - Example One

An Elasticsearch domain configured with three dedicated master nodes by means of the DedicatedMasterCount property. The example is shown in JSON and in YAML.

JSON example

```json
{
  "ElasticsearchDomain": {
    "Type": "AWS::Elasticsearch::Domain",
    "Properties": {
      "ElasticsearchVersion": 7.1,
      "EBSOptions": {
        
```
YAML example

ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
The examples that follow show how to implement this remediation.

Elasticsearch Domain - Example Two

An Elasticsearch domain configured with three dedicated master nodes by means of the AWS CloudFormation defaults. The example is shown in JSON and in YAML.

JSON example

```json
{
  "ElasticsearchDomain": {
    "Type": "AWS::Elasticsearch::Domain",
    "Properties": {
      "ElasticsearchVersion": 7.1,
      "EBSOptions": {
        "EBSEnabled": true,
        "Iops": "3000",
        "VolumeSize": "10",
        "VolumeType": "gp3"
      },
      "AccessPolicies": {
        "Version": "2012-10-17",
        "Statement": [
          {
            "Effect": "Deny",
            "Principal": {
              "AWS": "*"
            },
            "Action": "es:*",
            "Resource": "*"
          }
        ]
      }
    }
  }
}
```
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    ElasticsearchClusterConfig:
      InstanceType: t3.small.elasticsearch
      DedicatedMasterEnabled: true

CT.OPENSEARCH.PR.7 rule specification

# ###################################################################
## Rule Specification    ##
###################################################################
Rule Identifier:
elasticsearch_primary_node_fault_tolerance_check

Description:
This control checks whether Elasticsearch domains are configured with at least three dedicated master nodes.

Reports on:
AWS::Elasticsearch::Domain

Evaluates:
AWS CloudFormation, AWS CloudFormation hook

Rule Parameters:
None

Scenarios:
Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any Elasticsearch domain resources
Then: SKIP
Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elasticsearch domain resource
And: 'ElasticsearchClusterConfig' has not been provided
Then: FAIL
Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elasticsearch domain resource
And: 'ElasticsearchClusterConfig' has been provided
And: 'DedicatedMasterEnabled' in 'ElasticsearchClusterConfig' has not been provided
or provided and set to a value other than bool(true)
And: 'DedicatedMasterCount' in 'ElasticsearchClusterConfig' has not been provided or
provided and set to an integer value less than three (< 3)
Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elasticsearch domain resource
And: 'ElasticsearchClusterConfig' has been provided
And: 'DedicatedMasterEnabled' in 'ElasticsearchClusterConfig' has not been provided
   or provided and set to a value other than bool(true)
And: 'DedicatedMasterCount' in 'ElasticsearchClusterConfig' has been provided
   and set to an integer value greater than or equal to three (>= 3)
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an Elasticsearch domain resource
And: 'ElasticsearchClusterConfig' has been provided
And: 'DedicatedMasterEnabled' in 'ElasticsearchClusterConfig' has been provided
   and set to bool(true)
And: 'DedicatedMasterCount' in 'ElasticsearchClusterConfig' has been provided
   and set to an integer value less than three (< 3)
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an Elasticsearch domain resource
And: 'ElasticsearchClusterConfig' has been provided
And: 'DedicatedMasterEnabled' in 'ElasticsearchClusterConfig' has been provided
   and set to bool(true)
And: 'DedicatedMasterCount' in 'ElasticsearchClusterConfig' has not been provided
Then: PASS

Scenario: 7
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an Elasticsearch domain resource
And: 'ElasticsearchClusterConfig' has been provided
And: 'DedicatedMasterEnabled' in 'ElasticsearchClusterConfig' has been provided
   and set to bool(true)
And: 'DedicatedMasterCount' in 'ElasticsearchClusterConfig' has been provided
   and set to an integer value greater than or equal to three (>= 3)
Then: PASS

Constants
let ELASTICSEARCH_DOMAIN_TYPE = "AWS::Elasticsearch::Domain"
let INPUT_DOCUMENT = this

# Assignments
let elasticsearch_domains = Resources.*[ Type == %ELASTICSEARCH_DOMAIN_TYPE ]

# Primary Rules
rule elasticsearch_primary_node_fault_tolerance_check when is_cfn_template(%INPUT_DOCUMENT) %elasticsearch_domains not empty {
    check(%elasticsearch_domains.Properties)
    [CT.OPENSEARCH.PR.7]: Require an Elasticsearch domain to have at least three dedicated master nodes
    [FIX]: Within 'ElasticsearchClusterConfig', set 'DedicatedMasterEnabled' to 'true', and set 'DedicatedMasterCount' to an integer value greater than or equal to three, or omit the 'DedicatedMasterCount' property to adopt the default value of three.
}

rule elasticsearch_primary_node_fault_tolerance_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTICSEARCH_DOMAIN_TYPE) {
    check(%INPUT_DOCUMENT.%ELASTICSEARCH_DOMAIN_TYPE.resourceProperties)
    [CT.OPENSEARCH.PR.7]: Require an Elasticsearch domain to have at least three dedicated master nodes
    [FIX]: Within 'ElasticsearchClusterConfig', set 'DedicatedMasterEnabled' to 'true', and set 'DedicatedMasterCount' to an integer value greater than or equal to three, or omit the 'DedicatedMasterCount' property to adopt the default value of three.
}

# Parameterized Rules
rule check(elasticsearch_domain) {
%elasticsearch_domain {
  # Scenario 2
  ElasticsearchClusterConfig exists
  ElasticsearchClusterConfig is_struct

  ElasticsearchClusterConfig {
    # Scenario 3, 4, 5 and 6
    DedicatedMasterEnabled exists
    DedicatedMasterEnabled == true

    DedicatedMasterCount not exists or
    DedicatedMasterCount >= 3
  }
}
}

# Utility Rules
#ule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.OPENSEARCH.PR.7 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  ElasticsearchDomain:
    Type: AWS::Elasticsearch::Domain
Properties:
   ElasticsearchVersion: 7.1
   ElasticsearchClusterConfig:
       InstanceType: t3.small.elasticsearch
       DedicatedMasterEnabled: true
   EBSOptions:
       EBSEnabled: true
       Iops: '3000'
       VolumeSize: '10'
       VolumeType: gp3
   AccessPolicies:
       Version: '2012-10-17'
       Statement:
       - Effect: Deny
         Principal:
         AWS: '*'
         Action: es:*
         Resource: '*'

PASS Example - Use this template to verify a compliant resource creation.

Resources:
ElasticsearchDomain:
   Type: AWS::Elasticsearch::Domain
   Properties:
       ElasticsearchVersion: 7.1
       ElasticsearchClusterConfig:
           InstanceType: t3.small.elasticsearch
           DedicatedMasterEnabled: true
           DedicatedMasterCount: 3
       EBSOptions:
           EBSEnabled: true
           Iops: '3000'
           VolumeSize: '10'
           VolumeType: gp3
       AccessPolicies:
           Version: '2012-10-17'
           Statement:
           - Effect: Deny
             Principal:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceType: t3.small.elasticsearch
      DedicatedMasterEnabled: false
  EBSOptions:
    EBSEnabled: true
    Iops: '3000'
    VolumeSize: '10'
    VolumeType: gp3
  AccessPolicies:
    Version: '2012-10-17'
    Statement:
      - Effect: Deny
        Principal:
          AWS: '*'
        Action: es:*
        Resource: '*'

[CT.OPENSEARCH.PR.8] Require an Elasticsearch Service domain to use TLSv1.2

This control checks whether Elasticsearch Service domains are configured to require HTTPS with a minimum TLS version of TLSv1.2.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
Resource types: AWS::Elasticsearch::Domain

AWS CloudFormation guard rule: CT.OPENSEARCH.PR.8 rule specification

Details and examples

For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.OPENSEARCH.PR.8 rule specification

For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: CT.OPENSEARCH.PR.8 example templates

Explanation

HTTPS (TLS) can help prevent potential attackers from using person-in-the-middle, or similar attacks, to eavesdrop on or manipulate network traffic. Only encrypted connections over HTTPS (TLS) should be allowed. Encrypting data in transit can affect performance. You should test your application with this feature to understand the performance profile and the effects of TLS. TLS 1.2 provides several security enhancements over previous versions of TLS.

Remediation for rule failure


The examples that follow show how to implement this remediation.

Elasticsearch Domain - Example

An Elasticsearch domain configured to require that all traffic to the domain arrives over HTTPS with a minimum TLS version of TLSv1.2. The example is shown in JSON and in YAML.

JSON example

```json
{
   "ElasticsearchDomain": {
      "Type": "AWS::Elasticsearch::Domain",
      "Properties": {
         "ElasticsearchVersion": 7.1,
         "ElasticsearchClusterConfig": {
            "InstanceCount": "1",
```
"InstanceType": "t3.small.elasticsearch",
"EBSOptions": {
  "EBSEnabled": true,
  "Iops": "3000",
  "VolumeSize": "10",
  "VolumeType": "gp3"
},
"AccessPolicies": {
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Deny",
      "Principal": {
        "AWS": "*
      },
      "Action": "es:*",
      "Resource": "*
    }
  ],
},
"DomainEndpointOptions": {
  "EnforceHTTPS": true,
  "TLSSecurityPolicy": "Policy-Min-TLS-1-2-2019-07"
}

YAML example

ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
CT.OPENSEARCH.PR.8 rule specification

# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
## Rule Specification
# # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
#
# Rule Identifier:
#   elasticsearch_https_required_check
#
# Description:
#   This control checks whether Elasticsearch domains are configured to require HTTPS with a minimum TLS version of TLSv1.2.
#
# Reports on:
#   AWS::Elasticsearch::Domain
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

VolumeSize: '10'
VolumeType: gp3
AccessPolicies:
  Version: '2012-10-17'
  Statement:
    - Effect: Deny
      Principal:
        AWS: '*'
      Action: es:*
      Resource: '*'
DomainEndpointOptions:
  EnforceHTTPS: true
And: The input document does not contain any Elasticsearch domain resources
Then: SKIP

Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elasticsearch domain resource
And: 'DomainEndpointOptions' has not been provided
Then: FAIL

Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elasticsearch domain resource
And: 'DomainEndpointOptions' has been provided
And: 'EnforceHTTPS' in 'DomainEndpointOptions' has not been provided or has been provided and set to a value other than bool(true)
And: 'TLSSecurityPolicy' in 'DomainEndpointOptions' has not been provided or has been provided and set to a value other than 'Policy-Min-TLS-1-2-2019-07'
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elasticsearch domain resource
And: 'DomainEndpointOptions' has been provided
And: 'EnforceHTTPS' in 'DomainEndpointOptions' has been provided and set to bool(true)
And: 'TLSSecurityPolicy' in 'DomainEndpointOptions' has not been provided or has been provided and set to a value other than 'Policy-Min-TLS-1-2-2019-07'
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elasticsearch domain resource
And: 'DomainEndpointOptions' has been provided
And: 'EnforceHTTPS' in 'DomainEndpointOptions' has not been provided or has been provided and set to a value other than bool(true)
And: 'TLSSecurityPolicy' in 'DomainEndpointOptions' has been provided and set to 'Policy-Min-TLS-1-2-2019-07'
Then: FAIL

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Elasticsearch domain resource
# And: 'DomainEndpointOptions' has been provided
# And: 'EnforceHTTPS' in 'DomainEndpointOptions' has been provided and set to bool(true)
# And: 'TLSSecurityPolicy' in 'DomainEndpointOptions' has been provided and set to 'Policy-Min-TLS-1-2-2019-07'
# Then: PASS

# Constants
#
let ELASTICSEARCH_DOMAIN_TYPE = "AWS::Elasticsearch::Domain"
let INPUT_DOCUMENT = this

# Assignments
#
let elasticsearch_domains = Resources.[ Type == %ELASTICSEARCH_DOMAIN_TYPE ]

# Primary Rules
#
rule elasticsearch_https_required_check when is_cfn_template(%INPUT_DOCUMENT)
%elasticsearch_domains not empty {
  check(%elasticsearch_domains.Properties)
  <<
  [CT.OPENSEARCH.PR.8]: Require an Elasticsearch Service domain to use TLSv1.2
  [FIX]: Within 'DomainEndpointOptions', set 'EnforceHTTPS' to 'true' and set 'TLSSecurityPolicy' to 'Policy-Min-TLS-1-2-2019-07'.
  >>
}

rule elasticsearch_https_required_check when is_cfn_hook(%INPUT_DOCUMENT, %ELASTICSEARCH_DOMAIN_TYPE) {
  check(%INPUT_DOCUMENT.%ELASTICSEARCH_DOMAIN_TYPE.resourceProperties)
  <<
  [CT.OPENSEARCH.PR.8]: Require an Elasticsearch Service domain to use TLSv1.2
  [FIX]: Within 'DomainEndpointOptions', set 'EnforceHTTPS' to 'true' and set 'TLSSecurityPolicy' to 'Policy-Min-TLS-1-2-2019-07'.
  >>
}

# Parameterized Rules

Proactive controls
# rule check(elasticsearch_domain) {
    %elasticsearch_domain {
        # Scenario 2
        DomainEndpointOptions exists
        DomainEndpointOptions is_struct

        DomainEndpointOptions {
            # Scenarios 3, 4, 5 and 6
            EnforceHTTPS exists
            EnforceHTTPS == true

            TLSSecurityPolicy exists
            TLSSecurityPolicy in %ALLOWED_TLS_POLICIES
        }
    }
}

# Utility Rules
### rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

---

**CT.OPENSEARCH.PR.8 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

**Resources:**
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    DomainEndpointOptions:
      EnforceHTTPS: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ElasticsearchDomain:
  Type: AWS::Elasticsearch::Domain
  Properties:
    ElasticsearchVersion: 7.1
    ElasticsearchClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.elasticsearch
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
[CT.OPENSEARCH.PR.9] Require an Amazon OpenSearch Service domain to encrypt data at rest

This control checks whether Amazon OpenSearch Service domains have encryption-at-rest enabled.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::OpenSearchService::Domain
- **AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.9 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.9 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.9 example templates](#)

Explanation

For an added layer of security for sensitive data, you should configure your OpenSearch Service domain to be encrypted at rest. When you configure encryption of data at rest, AWS KMS stores and manages your encryption keys. To perform the encryption, AWS KMS uses the Advanced Encryption Standard algorithm with 256-bit keys (AES-256).
Remediation for rule failure

Within EncryptionAtRestOptions, set Enabled to true.

The examples that follow show how to implement this remediation.

Amazon OpenSearch Service Domain - Example

An Amazon OpenSearch Service domain configured with encryption-at-rest enabled The example is shown in JSON and in YAML.

JSON example

```json
{
    "OpenSearchServiceDomain": {
        "Type": "AWS::OpenSearchService::Domain",
        "Properties": {
            "EngineVersion": "OpenSearch_1.3",
            "ClusterConfig": {
                "InstanceCount": "1",
                "InstanceType": "t3.small.search"
            },
            "EBSOptions": {
                "EBSEnabled": true,
                "Iops": "3000",
                "VolumeSize": "10",
                "VolumeType": "gp3"
            },
            "AccessPolicies": {
                "Version": "2012-10-17",
                "Statement": [
                    {
                        "Effect": "Deny",
                        "Principal": {
                            "AWS": "*"
                        },
                        "Action": "es:*",
                        "Resource": "*"
                    }
                ],
            }
        },
        "EncryptionAtRestOptions": {
            "Enabled": true
        }
    }
}
```
YAML example

OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    EncryptionAtRestOptions:
      Enabled: true

CT.OPENSEARCH.PR.9 rule specification

# ##########################################################################
# Rule Specification       #
# ##########################################################################
#
# Rule Identifier:
# opensearch_encrypted_at_rest_check
# Description:
# This control checks whether Amazon OpenSearch Service domains have encryption-at-rest enabled.
#
# Reports on:
# AWS::OpenSearchService::Domain
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document does not contain any OpenSearch Service domain resources
#   Then: SKIP
# Scenario: 2
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an OpenSearch Service domain resource
#       And: 'EncryptionAtRestOptions' has not been provided
#   Then: FAIL
# Scenario: 3
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an OpenSearch Service domain resource
#       And: 'EncryptionAtRestOptions' has been provided
#       And: In 'EncryptionAtRestOptions', 'Enabled' has not been provided or provided
#       and set to a value other than bool(true)
#   Then: FAIL
# Scenario: 4
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an OpenSearch Service domain resource
#       And: 'EncryptionAtRestOptions' has been provided
#       And: In 'EncryptionAtRestOptions','Enabled' has been provided and set to bool(true)
#   Then: PASS
# Constants
let OPENSEARCH_SERVICE_DOMAIN_TYPE = "AWS::OpenSearchService::Domain"
let INPUT_DOCUMENT = this

# Assignments
let opensearch_service_domains = Resources.*[ Type == %OPENSEARCH_SERVICE_DOMAIN_TYPE ]

# Primary Rules
rule opensearch_encrypted_at_rest_check when is_cfn_template(%INPUT_DOCUMENT)
%opensearch_service_domains not empty {
    check(%opensearch_service_domains.Properties)
    <<
    [CT.OPENSEARCH.PR.9]: Require an Amazon OpenSearch Service domain to encrypt data at rest
    [FIX]: Within 'EncryptionAtRestOptions', set 'Enabled' to 'true'.
    >>
}

rule opensearch_encrypted_at_rest_check when is_cfn_hook(%INPUT_DOCUMENT, %OPENSEARCH_SERVICE_DOMAIN_TYPE) {
    check(%INPUT_DOCUMENT.%OPENSEARCH_SERVICE_DOMAIN_TYPE.resourceProperties)
    <<
    [CT.OPENSEARCH.PR.9]: Require an Amazon OpenSearch Service domain to encrypt data at rest
    [FIX]: Within 'EncryptionAtRestOptions', set 'Enabled' to 'true'.
    >>
}

# Parameterized Rules
rule check(opensearch_service_domain) {
    %opensearch_service_domain {
        # Scenario 2
        EncryptionAtRestOptions exists
        EncryptionAtRestOptions is_struct

        EncryptionAtRestOptions {

    

Proactive controls
# Scenarios 3 and 4

Enabled exists
Enabled == true

# Utility Rules

## CT.OPENSEARCH.PR.9 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:**

- **OpenSearchServiceDomain:**
  - **Type:** AWS::OpenSearchService::Domain
  - **Properties:**
    - **EngineVersion:** OpenSearch_1.3
    - **ClusterConfig:**
      - **InstanceCount:** '1'
      - **InstanceType:** t3.small.search
    - **EBSOptions:**
      - **EBSEnabled:** true
      - **Iops:** '3000'
      - **VolumeSize:** '10'
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
  AccessPolicies:
    Version: '2012-10-17'
    Statement:
      - Effect: Deny
        Principal:
          AWS: '*'
        Action: es:*
        Resource: '*'
    EncryptionAtRestOptions:
      Enabled: true
[CT.OPENSEARCH.PR.10] Require an Amazon OpenSearch Service domain to be created in a user-specified Amazon VPC

This control checks whether Amazon OpenSearch Service domains are configured with VPC option settings that specify a target Amazon VPC.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::OpenSearchService::Domain
- **AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.10 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.10 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.10 example templates](#)

**Explanation**

Ensure that OpenSearch domains are not attached to public subnets. See Resource-based policies in the Amazon OpenSearch Service Developer Guide. Also ensure that your VPC is configured according to the recommended best practices. See Security best practices for your VPC in the Amazon VPC User Guide.

OpenSearch domains deployed within a VPC can communicate with VPC resources over the private AWS network, without the need to traverse the public internet. This configuration increases the security posture by limiting access to the data in transit. VPCs provide a number of network controls to secure access to OpenSearch domains, including network ACL and security groups. AWS Control Tower recommends that you migrate public OpenSearch domains to VPCs to take advantage of these controls.

**Remediation for rule failure**

Within VPCOptions, set SubnetIds to a list with one or more Amazon EC2 subnet IDs.

The examples that follow show how to implement this remediation.
Amazon OpenSearch Service Domain - Example

An Amazon OpenSearch Service domain configured to deploy within an Amazon VPC by means of VPC option setting. The example is shown in JSON and in YAML.

JSON example

```json
{
    "OpenSearchServiceDomain": {
        "Type": "AWS::OpenSearchService::Domain",
        "Properties": {
            "EngineVersion": "OpenSearch_1.3",
            "ClusterConfig": {
                "InstanceCount": "1",
                "InstanceType": "t3.small.search"
            },
            "EBSOptions": {
                "EBSEnabled": true,
                "Iops": "3000",
                "VolumeSize": "10",
                "VolumeType": "gp3"
            },
            "AccessPolicies": {
                "Version": "2012-10-17",
                "Statement": [
                    {
                        "Effect": "Deny",
                        "Principal": {
                            "AWS": "*"
                        },
                        "Action": "es:*",
                        "Resource": "*"
                    }
                ]
            },
            "VPCOptions": {
                "SubnetIds": [{
                    "Ref": "Subnet"
                }
            ]
        }
    }
}
```
YAML example

OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    VPCOptions:
      SubnetIds:
        - !Ref 'Subnet'

CT.OPENSEARCH.PR.10 rule specification

# #####################################################################
#                   Rule Specification                   #
# #####################################################################
# # Rule Identifier: #
# opensearch_in_vpc_only_check
#
# Description:
This control checks whether Amazon OpenSearch Service domains are configured with VPC option settings that specify a target Amazon VPC.

# Reports on:
AWS::OpenSearchService::Domain

# Evaluates:
AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
None

# Scenarios:
Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any OpenSearch Service domain resources
Then: SKIP

Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an OpenSearch Service domain resource
And: 'VPCOptions' has not been provided
Then: FAIL

Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an OpenSearch Service domain resource
And: 'VPCOptions' has been provided
And: 'SubnetIds' in 'VPCOptions' has not been provided or has been provided as an empty list
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an OpenSearch Service domain resource
And: 'VPCOptions' has been provided
And: 'SubnetIds' in 'VPCOptions' has been provided as a list with one or more values
Then: PASS
# Constants

let OPENSEARCH_SERVICE_DOMAIN_TYPE = "AWS::OpenSearchService::Domain"
let INPUT_DOCUMENT = this

# Assignments

let opensearch_service_domains = Resources.*[ Type == %OPENSEARCH_SERVICE_DOMAIN_TYPE ]

# Primary Rules

rule opensearch_in_vpc_only_check when is_cfn_template(%INPUT_DOCUMENT)
  %opensearch_service_domains not empty {
    check(%opensearch_service_domains.Properties)
    <<
    [CT.OPENSEARCH.PR.10]: Require an Amazon OpenSearch Service domain to be created in a user-specified Amazon VPC
    [FIX]: Within 'VPCOptions', set 'SubnetIds' to a list with one or more Amazon EC2 subnet IDs.
    >>
  }

rule opensearch_in_vpc_only_check when is_cfn_hook(%INPUT_DOCUMENT, %OPENSEARCH_SERVICE_DOMAIN_TYPE) {
  check(%INPUT_DOCUMENT.%OPENSEARCH_SERVICE_DOMAIN_TYPE.resourceProperties)
  <<
  [CT.OPENSEARCH.PR.10]: Require an Amazon OpenSearch Service domain to be created in a user-specified Amazon VPC
  [FIX]: Within 'VPCOptions', set 'SubnetIds' to a list with one or more Amazon EC2 subnet IDs.
  >>
}

# Parameterized Rules

rule check(opensearch_service_domain) {
  %opensearch_service_domain {
    # Scenario 2
    VPCOptions exists
    VPCOptions is_struct
  }
}
CT.OPENSEARCH.PR.10 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

VPC:
  Type: 'AWS::EC2::VPC'
  Properties:
    CidrBlock: 10.0.0.0/16

Subnet:
  Type: 'AWS::EC2::Subnet'
  Properties:
    VpcId:
      Ref: VPC
CidrBlock: 10.0.0.0/16
AvailabilityZone:
  Fn::Select:
  - 0
  - Fn::GetAZs: ''
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    VPCOptions:
      SubnetIds:
        - Ref: Subnet

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  OpenSearchServiceDomain:
    Type: AWS::OpenSearchService::Domain
    Properties:
      EngineVersion: OpenSearch_1.3
      ClusterConfig:
        InstanceCount: '1'
        InstanceType: t3.small.search
EBSOptions:
  EBSEnabled: true
  Iops: '3000'
  VolumeSize: '10'
  VolumeType: gp3
AccessPolicies:
  Version: '2012-10-17'
  Statement:
    - Effect: Deny
      Principal:
        AWS: '*'
      Action: es:*
      Resource: '*'

[CT.OPENSEARCH.PR.11] Require an Amazon OpenSearch Service domain to encrypt data sent between nodes

This control checks whether Amazon OpenSearch Service domains have node-to-node encryption enabled.

- **Control objective**: Encrypt data in transit
- **Implementation**: AWS CloudFormation guard rule
- **Control behavior**: Proactive
- **Resource types**: AWS::OpenSearchService::Domain
- **AWS CloudFormation guard rule**: [CT.OPENSEARCH.PR.11 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.11 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.11 example templates](#)

Explanation

HTTPS (TLS) can help prevent potential attackers from eavesdropping on or manipulating network traffic using person-in-the-middle, or similar, attacks. Only encrypted connections over HTTPS...
(TLS) should be allowed. Enabling node-to-node encryption for OpenSearch domains ensures that intra-cluster communications are encrypted in transit.

### Usage considerations

- A performance penalty may be associated with this configuration. You should be aware of the performance trade-offs and test them before enabling this option.

### Remediation for rule failure

Within `NodeToNodeEncryptionOptions`, set `Enabled` to `true`.

The examples that follow show how to implement this remediation.

#### Amazon OpenSearch Service Domain - Example

An Amazon OpenSearch Service domain configured with node-to-node encryption enabled. The example is shown in JSON and in YAML.

#### JSON example

```json
{
    "OpenSearchServiceDomain": {
        "Type": "AWS::OpenSearchService::Domain",
        "Properties": {
            "EngineVersion": "OpenSearch_1.3",
            "ClusterConfig": {
                "InstanceCount": "1",
                "InstanceType": "t3.small.search"
            },
            "EBSOptions": {
                "EBSEnabled": true,
                "Iops": "3000",
                "VolumeSize": "10",
                "VolumeType": "gp3"
            },
            "AccessPolicies": {
                "Version": "2012-10-17",
                "Statement": [
                    {
                        "Effect": "Deny",
                        "Action": "aws:StopCluster"
                    }
                ]
            }
        }
    }
}
```
"Principal": {
    "AWS": "*",
    "Action": "es:*",
    "Resource": "*"
  },
"NodeToNodeEncryptionOptions": {
    "Enabled": true
}
}

YAML example

OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
    Statement:
      - Effect: Deny
        Principal:
          AWS: '*
        Action: es:*
        Resource: '*
    NodeToNodeEncryptionOptions:
      Enabled: true
# CT.OPENSEARCH.PR.11 rule specification

# Rule Identifier:  
# opensearch_node_to_node_encryption_check  

# Description:  
# This control checks whether Amazon OpenSearch Service domains have node-to-node encryption enabled.

# Reports on:  
# AWS::OpenSearchService::Domain  

# Evaluates:  
# AWS CloudFormation, AWS CloudFormation hook  

# Rule Parameters:  
# None  

# Scenarios:  
# Scenario: 1  
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document  
# And: The input document does not contain any OpenSearch Service domain resources  
# Then: SKIP  
# Scenario: 2  
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document  
# And: The input document contains an OpenSearch Service domain resource  
# And: 'NodeToNodeEncryptionOptions' has not been provided  
# Then: FAIL  
# Scenario: 3  
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document  
# And: The input document contains an OpenSearch Service domain resource  
# And: 'NodeToNodeEncryptionOptions' has been provided  
# And: In 'NodeToNodeEncryptionOptions', 'Enabled' has not been provided or has been provided and set to a  
# value other than bool(true)
Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an OpenSearch Service domain resource
And: 'NodeToNodeEncryptionOptions' has been provided
And: In 'NodeToNodeEncryptionOptions', 'Enabled' has been provided and set to a value of bool(true)
Then: PASS

Constants

let OPENSEARCH_SERVICE_DOMAIN_TYPE = "AWS::OpenSearchService::Domain"
let INPUT_DOCUMENT = this

Assignments

let opensearch_service_domains = Resources.*[ Type == %OPENSEARCH_SERVICE_DOMAIN_TYPE ]

Primary Rules

rule opensearch_node_to_node_encryption_check when is_cfn_template(%INPUT_DOCUMENT) %opensearch_service_domains not empty {
    check(%opensearch_service_domains.Properties)
    <<
    [CT.OPENSEARCH.PR.11]: Require an Amazon OpenSearch Service domain to encrypt data sent between nodes
    [FIX]: Within 'NodeToNodeEncryptionOptions', set 'Enabled' to 'true'.
    >>
}

rule opensearch_node_to_node_encryption_check when is_cfn_hook(%INPUT_DOCUMENT, %OPENSEARCH_SERVICE_DOMAIN_TYPE) {
    check(%INPUT_DOCUMENT.%OPENSEARCHSERVICE_DOMAIN_TYPE.resourceProperties)
    <<
    [CT.OPENSEARCH.PR.11]: Require an Amazon OpenSearch Service domain to encrypt data sent between nodes
    [FIX]: Within 'NodeToNodeEncryptionOptions', set 'Enabled' to 'true'.
    >>
}
## Parameterized Rules

```haskell
rule check(opensearch_service_domain) {
  %opensearch_service_domain {
    # Scenario 2
    NodeToNodeEncryptionOptions exists
    NodeToNodeEncryptionOptions is_struct

    NodeToNodeEncryptionOptions {
      # Scenarios 3 and 4
      Enabled exists
      Enabled == true
    }
  }
}
```

## Utility Rules

```haskell
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```haskell
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

---

**CT.OPENSEARCH.PR.11 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:**
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
Properties:
  EngineVersion: OpenSearch_1.3
  ClusterConfig:
    InstanceCount: '1'
    InstanceType: t3.small.search
EBSOptions:
  EBSEnabled: true
  Iops: '3000'
  VolumeSize: '10'
  VolumeType: gp3
AccessPolicies:
  Version: '2012-10-17'
  Statement:
    - Effect: Deny
      Principal:
        AWS: '*'
      Action: es:*
      Resource: '*'
NodeToNodeEncryptionOptions:
  Enabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  OpenSearchServiceDomain:
    Type: AWS::OpenSearchService::Domain
Properties:
  EngineVersion: OpenSearch_1.3
  ClusterConfig:
    InstanceCount: '1'
    InstanceType: t3.small.search
EBSOptions:
  EBSEnabled: true
  Iops: '3000'
  VolumeSize: '10'
  VolumeType: gp3
AccessPolicies:
[CT.OPENSEARCH.PR.12] Require an Amazon OpenSearch Service domain to send error logs to Amazon CloudWatch Logs

This control checks whether Amazon OpenSearch Service domains are configured to send error logs to an Amazon CloudWatch Logs log group.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::OpenSearchService::Domain
- **AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.12 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.12 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.12 example templates](#)

**Explanation**

Enable error logs (ES_APPLICATION_LOGS) for OpenSearch Service domains and send those logs to Amazon CloudWatch Logs for retention and response. Domain error logs can assist with security and access audits, and can help to diagnose availability issues.
Remediation for rule failure

Within LogPublishingOptions, provide an ES_APPLICATION_LOGS configuration, set Enabled to true, and set CloudWatchLogsLogGroupArn to the ARN of a valid Amazon CloudWatch Logs log group.

The examples that follow show how to implement this remediation.

Amazon OpenSearch Service Domain - Example

An Amazon OpenSearch Service domain configured to send error logs to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

JSON example

```
{
  "OpenSearchServiceDomain": {
    "Type": "AWS::OpenSearchService::Domain",
    "Properties": {
      "EngineVersion": "OpenSearch_1.3",
      "ClusterConfig": {
        "InstanceCount": "1",
        "InstanceType": "t3.small.search"
      },
      "EBSOptions": {
        "EBSEnabled": true,
        "Iops": "3000",
        "VolumeSize": "10",
        "VolumeType": "gp3"
      },
      "AccessPolicies": {
        "Version": "2012-10-17",
        "Statement": [
          {
            "Effect": "Deny",
            "Principal": {
              "AWS": "*"
            },
            "Action": "es:*",
            "Resource": "*"
          }
        ]
      }
    }
  }
```

Proactive controls
YAML example

OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    LogPublishingOptions:
      ES_APPLICATION_LOGS:
        CloudWatchLogsLogGroupArn: !GetAtt 'LogGroup.Arn'
CT.OPENSEARCH.PR.12 rule specification

# #####################################################################
##       Rule Specification        ##
#####################################################################
#
# Rule Identifier:
#   opensearch_application_logging_enabled_check
#
# Description:
#   This control checks whether Amazon OpenSearch Service domains are configured to
#   send error logs to an Amazon CloudWatch Logs log group.
#
# Reports on:
#   AWS::OpenSearchService::Domain
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any OpenSearch Service domain
#         resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an OpenSearch Service domain resource
#     And: 'LogPublishingOptions' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document

Enabled: true
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'ES_APPLICATION_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'ES_APPLICATION_LOGS' has not been provided or provided and
# set to
#     a value other than bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'ES_APPLICATION_LOGS' has not been provided or provided
#     as an empty string or invalid local reference
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service Domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'ES_APPLICATION_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'ES_APPLICATION_LOGS' has been provided and set to bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'ES_APPLICATION_LOGS' has not been provided or provided
#     as an empty string or invalid local reference
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service Domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'ES_APPLICATION_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'ES_APPLICATION_LOGS' has not been provided or provided and
# set to
#     a value other than bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'ES_APPLICATION_LOGS' has been provided as
# a non-empty string
# or valid local reference
# Then: FAIL
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an OpenSearch Service Domain resource
And: 'LogPublishingOptions' has been specified
And: 'ES_APPLICATION_LOGS' in 'LogPublishingOptions' has been provided
And: 'Enabled' in 'ES_APPLICATION_LOGS' has been provided and set to bool(true)
And: 'CloudWatchLogsLogGroupArn' in 'ES_APPLICATION_LOGS' has been provided as a non-empty string
or valid local reference
Then: PASS

# Constants
#
let OPENSEARCH_SERVICE_DOMAIN_TYPE = "AWS::OpenSearchService::Domain"
let INPUT_DOCUMENT = this
#
# Assignments
#
let opensearch_service_domains = Resources.*[ Type == %OPENSEARCH_SERVICE_DOMAIN_TYPE ]
#
# Primary Rules
#
rule opensearch_application_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%opensearch_service_domains not empty {
    check(%opensearch_service_domains.Properties)
    <<
        [CT.OPENSEARCH.PR.12]: Require an Amazon OpenSearch Service domain to send
        error logs to Amazon CloudWatch Logs
        [FIX]: Within 'LogPublishingOptions', provide an 'ES_APPLICATION_LOGS'
        configuration, set 'Enabled' to 'true', and set 'CloudWatchLogsLogGroupArn' to the ARN
        of a valid Amazon CloudWatch Logs log group.
    >>
}

rule opensearch_application_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %OPENSEARCH_SERVICE_DOMAIN_TYPE) {
    check(%INPUT_DOCUMENT.%OPENSEARCH_SERVICE_DOMAIN_TYPE.resourceProperties)
    <<
        [CT.OPENSEARCH.PR.12]: Require an Amazon OpenSearch Service domain to send
        error logs to Amazon CloudWatch Logs
[FIX]: Within 'LogPublishingOptions', provide an 'ES_APPLICATION_LOGS' configuration, set 'Enabled' to 'true', and set 'CloudWatchLogsLogGroupArn' to the ARN of a valid Amazon CloudWatch Logs log group.

```
}

# # Parameterized Rules
#
rule check(opensearch_service_domain) {
  %opensearch_service_domain {
    # Scenario 2
    LogPublishingOptions exists
    LogPublishingOptions is_struct

    LogPublishingOptions {
      # Scenario 3
      ES_APPLICATION_LOGS exists
      ES_APPLICATION_LOGS is_struct

      ES_APPLICATION_LOGS {
        # Scenarios 4, 5, 6 and 7
        Enabled exists
        Enabled == true

        CloudWatchLogsLogGroupArn exists
        check_is_string_and_not_empty(CloudWatchLogsLogGroupArn) or
        check_local_references(%INPUT_DOCUMENT, CloudWatchLogsLogGroupArn,
        "AWS::Logs::LogGroup")
      }
    }
  }
}

# # Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_resource_type)
            <<Local Stack reference was invalid>>
        }
    }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    %referenced_resource not empty
    %referenced_resource {
        Type == %referenced_resource_type
    }
}

CT.OPENSEARCH.PR.12 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
OpenSearchServiceDomain:
    Type: AWS::OpenSearchService::Domain
DependsOn: LogGroupPolicy
Properties:
  EngineVersion: OpenSearch_1.3
ClusterConfig:
  InstanceCount: '1'
  InstanceType: t3.small.search
EBSOptions:
  EBSEnabled: true
  Iops: '3000'
  VolumeSize: '10'
  VolumeType: gp3
AccessPolicies:
  Version: '2012-10-17'
  Statement:
    - Effect: Deny
      Principal:
        AWS: '*'
      Action: es:*
      Resource: '*'
LogPublishingOptions:
  ES_APPLICATION_LOGS:
    CloudWatchLogsLogGroupArn:
      Fn::GetAtt:
      - LogGroup
      - Arn
      Enabled: true
LogGroup:
  Type: AWS::Logs::LogGroup
LogGroupPolicy:
  Type: AWS::Logs::ResourcePolicy
Properties:
  PolicyName:
    Fn::Sub: ${AWS::StackName}-AllowOS
  PolicyDocument:
    Fn::Sub:
    - '{"Version": "2012-10-17","Statement": [{"Effect": "Allow","Principal":
      {"Service": ["es.amazonaws.com"]},"Action":
      ["logs:PutLogEvents","logs:CreateLogStream"],"Resource": "${LogGroupArn}"},
    {"Condition":
     {"StringEquals": {"aws:SourceAccount": "${AWS::AccountId}"}}}]}'
  LogGroupArn:
    Fn::GetAtt: [LogGroup, Arn]
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
Properties:
  EngineVersion: OpenSearch_1.3
  ClusterConfig:
    InstanceCount: '1'
    InstanceType: t3.small.search
  EBSOptions:
    EBSEnabled: true
    Iops: '3000'
    VolumeSize: '10'
    VolumeType: gp3
  AccessPolicies:
    Version: '2012-10-17'
    Statement:
      - Effect: Deny
        Principal:
          AWS: '*'
        Action: es:*
        Resource: '*'

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
Properties:
  EngineVersion: OpenSearch_1.3
  ClusterConfig:
    InstanceCount: '1'
    InstanceType: t3.small.search
  EBSOptions:
    EBSEnabled: true
    Iops: '3000'
[CT.OPENSEARCH.PR.13] Require an Amazon OpenSearch Service domain to send audit logs to Amazon CloudWatch Logs

This control checks whether Amazon OpenSearch Service domains are configured to send audit logs to an Amazon CloudWatch Logs log group.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** `AWS::OpenSearchService::Domain`

**AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.13 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.13 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.13 example templates](#)

**Explanation**
Audit logs are highly customizable. They allow you to track user activity on your OpenSearch clusters, including authentication successes and failures, requests to OpenSearch, index changes, and incoming search queries.

### Usage considerations

- Audit log publishing requires advanced security options to be enabled on Amazon OpenSearch Service domains.
- To enable advanced security options on an Amazon OpenSearch Service domain, you must enable encryption of data at rest by means of the `EncryptionAtRestOptions` property, node-to-node encryption by means of the `NodeToNodeEncryptionOptions` property, and enforce HTTPS connections by means of the `EnforceHTTPS` property within `DomainEndpointOptions`.

### Remediation for rule failure

Within `LogPublishingOptions`, provide an `AUDIT_LOGS` configuration, set `Enabled` to `true` and `CloudWatchLogsLogGroupArn` to the ARN of a valid Amazon CloudWatch Logs log group.

The examples that follow show how to implement this remediation.

**Amazon OpenSearch Service Domain - Example**

An Amazon OpenSearch Service domain configured to send audit logs to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

#### JSON example

```json
{
   "OpenSearchServiceDomain": {
      "Type": "AWS::OpenSearchService::Domain",
      "DependsOn": "LogGroupPolicy",
      "Properties": {
         "EngineVersion": "OpenSearch_1.3",
         "ClusterConfig": {
            "InstanceCount": "1",
            "InstanceType": "t3.small.search"
         },
         "EBSOptions": {
```
"EBSEnabled": true,
"Iops": "3000",
"VolumeSize": "10",
"VolumeType": "gp3"
],
"AccessPolicies": {
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Deny",
      "Principal": {
        "AWS": "*"
      },
      "Action": "es:*",
      "Resource": "*"
    }
  ]
},
"NodeToNodeEncryptionOptions": {
  "Enabled": true
},
"EncryptionAtRestOptions": {
  "Enabled": true
},
"DomainEndpointOptions": {
  "EnforceHTTPS": true
},
"AdvancedSecurityOptions": {
  "Enabled": true,
  "InternalUserDatabaseEnabled": false,
  "MasterUserOptions": {
    "MasterUserARN": {
      "Fn::GetAtt": [
        "IAMRole",
        "Arn"
      ]
    }
  }
},
"LogPublishingOptions": {
  "AUDIT_LOGS": {
    "CloudWatchLogsLogGroupArn": {
      "Fn::GetAtt": [
        "LogGroup",
        "Arn"
      ]
    }
  }
}
YAML example

```yaml
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  DependsOn: LogGroupPolicy
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
        - Principal:
          - AWS: '*'
          - Action: es:*
        - Resource: '*'
    NodeToNodeEncryptionOptions:
      Enabled: true
    EncryptionAtRestOptions:
      Enabled: true
    DomainEndpointOptions:
      EnforceHTTPS: true
    AdvancedSecurityOptions:
      Enabled: true
```

Proactive controls
InternalUserDatabaseEnabled: false
MasterUserOptions:
  MasterUserARN: !GetAtt 'IAMRole.Arn'
LogPublishingOptions:
  AUDIT_LOGS:
    CloudWatchLogsLogGroupArn: !GetAtt 'LogGroup.Arn'
    Enabled: true

CT.OPENSEARCH.PR.13 rule specification

# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   opensearch_audit_logging_enabled_check
#
# Description:
#   This control checks whether Amazon OpenSearch Service domains are configured to
#   send audit logs to an Amazon CloudWatch Logs log group.
#
# Reports on:
#   AWS::OpenSearchService::Domain
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#          And: The input document does not contain any OpenSearch Service domain
#                resources
#          Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service domain resource
#   And: 'LogPublishingOptions' has not been provided
#   Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an OpenSearch Service domain resource
#   And: 'LogPublishingOptions' has been provided
#   And: 'AUDIT_LOGS' in 'LogPublishingOptions' has not been provided
#   Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an OpenSearch Service domain resource
#   And: 'LogPublishingOptions' has been specified
#   And: 'AUDIT_LOGS' in 'LogPublishingOptions' has been provided
#   And: 'Enabled' in 'AUDIT_LOGS' has not been provided or provided and set to
#   a value other than bool(true)
#   And: 'CloudWatchLogsLogGroupArn' in 'AUDIT_LOGS' has not been provided or
#   provided
#       as an empty string or invalid local reference
#   Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an OpenSearch Service domain resource
#   And: 'LogPublishingOptions' has been specified
#   And: 'AUDIT_LOGS' in 'LogPublishingOptions' has been provided
#   And: 'Enabled' in 'AUDIT_LOGS' has been provided and set to bool(true)
#   And: 'CloudWatchLogsLogGroupArn' in 'AUDIT_LOGS' has not been provided or
#   provided
#       as an empty string or invalid local reference
#   Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#   And: The input document contains an OpenSearch Service domain resource
#   And: 'LogPublishingOptions' has been specified
#   And: 'AUDIT_LOGS' in 'LogPublishingOptions' has been provided
#   And: 'Enabled' in 'AUDIT_LOGS' has not been provided or provided and set to
#   a value other than bool(true)
#   And: 'CloudWatchLogsLogGroupArn' in 'AUDIT_LOGS' has been provided as a non-
#   empty string
#       or valid local reference
# Then: FAIL
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an OpenSearch Service domain resource
# And: 'LogPublishingOptions' has been specified
# And: 'AUDIT_LOGS' in 'LogPublishingOptions' has been provided
# And: 'Enabled' in 'AUDIT_LOGS' has been provided and set to bool(true)
# And: 'CloudWatchLogsLogGroupArn' in 'AUDIT_LOGS' has been provided as a non-empty string
# or valid local reference
# Then: PASS

# Constants
#
let OPENSEARCH_SERVICE_DOMAIN_TYPE = "AWS::OpenSearchService::Domain"
let INPUT_DOCUMENT = this

# Assignments
#
let opensearch_service_domains = Resources.*[ Type == %OPENSEARCH_SERVICE_DOMAIN_TYPE ]

# Primary Rules
#
rule opensearch_audit_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
  %opensearch_service_domains not empty
  { check(%opensearch_service_domains.Properties) 
    <<
    [CT.OPENSEARCH.PR.13]: Require an Amazon OpenSearch Service domain to send audit logs to Amazon CloudWatch Logs
    [FIX]: Within 'LogPublishingOptions', provide an 'AUDIT_LOGS' configuration, set 'Enabled' to 'true' and 'CloudWatchLogsLogGroupArn' to the ARN of a valid Amazon CloudWatch Logs log group.
    >>
  }
rule opensearch_audit_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %OPENSEARCH_SERVICE_DOMAIN_TYPE) { check(%INPUT_DOCUMENT.%OPENSEARCH_SERVICE_DOMAIN_TYPE.resourceProperties) 
  <<
[CT.OPENSEARCH.PR.13]: Require an Amazon OpenSearch Service domain to send audit logs to Amazon CloudWatch Logs

[FIX]: Within 'LogPublishingOptions', provide an 'AUDIT_LOGS' configuration, set 'Enabled' to 'true' and 'CloudWatchLogsLogGroupArn' to the ARN of a valid Amazon CloudWatch Logs log group.

```yaml
# Parameterized Rules
#
rule check(opensearch_service_domain) {
  %opensearch_service_domain {
    # Scenario 2
    LogPublishingOptions exists
    LogPublishingOptions is_struct

    LogPublishingOptions {
      # Scenario 3
      AUDIT_LOGS exists
      AUDIT_LOGS is_struct

      AUDIT_LOGS {
        # Scenarios 4, 5, 6 and 7
        Enabled exists
        Enabled == true

        CloudWatchLogsLogGroupArn exists
        check_is_string_and_not_empty(CloudWatchLogsLogGroupArn) or
        check_local_references(%INPUT_DOCUMENT, CloudWatchLogsLogGroupArn,
        "AWS::Logs::LogGroup")
      }
    }
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
```
CT.OPENSEARCH.PR.13 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS:
              Ref: AWS::AccountId
          Action: sts:AssumeRole

OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  DependsOn: LogGroupPolicy
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    NodeToNodeEncryptionOptions:
      Enabled: true
    EncryptionAtRestOptions:
      Enabled: true
    DomainEndpointOptions:
      EnforceHTTPS: true
    AdvancedSecurityOptions:
      Enabled: true
      InternalUserDatabaseEnabled: false
    MasterUserOptions:
      MasterUserARN:
        Fn::GetAtt:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS:
              Ref: AWS::AccountId
          Action: sts:AssumeRole
    OpenSearchServiceDomain:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          AWS:
            Ref: AWS::AccountId
        Action: sts:AssumeRole
  OpenSearchServiceDomain:
    Type: AWS::OpenSearchService::Domain
    Properties:
      EngineVersion: OpenSearch_1.3
      ClusterConfig:
        InstanceCount: '1'
        InstanceType: t3.small.search
      EBSOptions:
        EBSEnabled: true
        Iops: '3000'
        VolumeSize: '10'
        VolumeType: gp3
      AccessPolicies:
        Version: '2012-10-17'
        Statement:
          - Effect: Deny
            Principal:
              AWS: '*'
            Action: es:*
            Resource: '*'
      NodeToNodeEncryptionOptions:
        Enabled: true
      EncryptionAtRestOptions:
        Enabled: true
      DomainEndpointOptions:
        EnforceHTTPS: true
      AdvancedSecurityOptions:
        Enabled: true
        InternalUserDatabaseEnabled: false
      MasterUserOptions:
        MasterUserARN:
          Fn::GetAtt:
          - IAMRole
          - Arn
      LogPublishingOptions:
[CT.OPENSEARCH.PR.14] Require an Amazon OpenSearch Service domain to have zone awareness and at least three data nodes

This control checks whether Amazon OpenSearch Service domains are configured with at least three data nodes and zone awareness enabled.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::OpenSearchService::Domain
- **AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.14 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.14 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.14 example templates](#)

**Explanation**

An OpenSearch domain requires at least three data nodes for high availability and fault-tolerance. Deploying an OpenSearch domain with at least three data nodes ensures that the cluster can remain operative if a node fails.

**Remediation for rule failure**

Within ClusterConfig, set ZoneAwarenessEnabled to true and InstanceCount to an integer value greater than or equal to three.

The examples that follow show how to implement this remediation.
Amazon OpenSearch Service Domain - Example

An Amazon OpenSearch Service domain configured with three data nodes and zone awareness enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
   "OpenSearchServiceDomain": {
      "Type": "AWS::OpenSearchService::Domain",
      "Properties": {
         "EngineVersion": "OpenSearch_1.3",
         "EBSOptions": {
            "EBSEnabled": true,
            "Iops": "3000",
            "VolumeSize": "10",
            "VolumeType": "gp3"
         },
         "AccessPolicies": {
            "Version": "2012-10-17",
            "Statement": [
               {
                  "Effect": "Deny",
                  "Principal": {
                     "AWS": "*"
                  },
                  "Action": "es:*",
                  "Resource": "*"
               }
            ]
         },
         "ClusterConfig": {
            "InstanceType": "t3.small.search",
            "InstanceCount": 3,
            "ZoneAwarenessEnabled": true,
            "ZoneAwarenessConfig": {
               "AvailabilityZoneCount": 3
            }
         }
      }
   }
}
```
**YAML example**

```yaml
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    ClusterConfig:
      InstanceType: t3.small.search
      InstanceCount: 3
      ZoneAwarenessEnabled: true
      ZoneAwarenessConfig:
        AvailabilityZoneCount: 3
```

**CT.OPENSEARCH.PR.14 rule specification**

```
# ###################################################################
##       Rule Specification       ##
# ###################################################################

# Rule Identifier:
# opensearch_data_node_fault_tolerance_check

# Description:
```
This control checks whether Amazon OpenSearch Service domains are configured with at least three data nodes and zone awareness enabled.

Reports on:
- AWS::OpenSearchService::Domain

Evaluates:
- AWS CloudFormation, AWS CloudFormation hook

Rule Parameters:
- None

Scenarios:
- Scenario: 1
  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
  And: The input document does not contain any OpenSearch Service domain resources
  Then: SKIP
- Scenario: 2
  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
  And: The input document contains an OpenSearch Service domain resource
  And: 'ClusterConfig' has not been provided
  Then: FAIL
- Scenario: 3
  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
  And: The input document contains an OpenSearch Service domain resource
  And: 'ClusterConfig' has been provided
  And: 'ZoneAwarenessEnabled' in 'ClusterConfig' has not been provided or provided and set to a value other than bool(true)
  And: 'InstanceCount' in 'ClusterConfig' has not been provided or provided and set to an integer value less than three (< 3)
  Then: FAIL
- Scenario: 4
  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
  And: The input document contains an OpenSearch Service domain resource
  And: 'ClusterConfig' has been provided
  And: 'ZoneAwarenessEnabled' in 'ClusterConfig' has been provided and set to bool(true)
  And: 'InstanceCount' in 'ClusterConfig' has not been provided or provided and set to an integer value less than three (< 3)
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service domain resource
# And: 'ClusterConfig' has been provided
# And: 'ZoneAwarenessEnabled' in 'ClusterConfig' has not been provided
# or provided and set to a value other than bool(true)
# And: 'InstanceCount' in 'ClusterConfig' has been provided and set to
# an integer value greater than or equal to three (>= 3)
# Then: FAIL

# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service domain resource
# And: 'ClusterConfig' has been provided
# And: 'ZoneAwarenessEnabled' in 'ClusterConfig' has been provided
# and set to bool(true)
# And: 'InstanceCount' in 'ClusterConfig' has been provided and set to
# an integer value greater than or equal to three (>= 3)
# Then: PASS

# Constants
#
let OPENSEARCH_SERVICE_DOMAIN_TYPE = "AWS::OpenSearchService::Domain"
let INPUT_DOCUMENT = this

# Assignments
#
let opensearch_service_domains = Resources.*[ Type == %OPENSEARCH_SERVICE_DOMAIN_TYPE ]

# Primary Rules
#
rule opensearch_data_node_fault_tolerance_check when is_cfn_template(%INPUT_DOCUMENT)
%opensearch_service_domains not empty {
    check(%opensearch_service_domains.Properties)
    <<
        [CT.OPENSEARCH.PR.14]: Require an Amazon OpenSearch Service domain to have zone
        awareness and at least three data nodes
    >>
}
[FIX]: Within 'ClusterConfig', set 'ZoneAwarenessEnabled' to 'true' and 'InstanceCount' to an integer value greater than or equal to three.

rule opensearch_data_node_fault_tolerance_check when is_cfn_hook(%INPUT_DOCUMENT, %OPENSEARCH_SERVICE_DOMAIN_TYPE) {
  check(%INPUT_DOCUMENT.%OPENSEARCH_SERVICE_DOMAIN_TYPE.resourceProperties)
  [CT.OPENSEARCH.PR.14]: Require an Amazon OpenSearch Service domain to have zone awareness and at least three data nodes
  [FIX]: Within 'ClusterConfig', set 'ZoneAwarenessEnabled' to 'true' and 'InstanceCount' to an integer value greater than or equal to three.
}

# Parameterized Rules
# rule check(opensearch_service_domain) {
%opensearch_service_domain {
  # Scenario 2
  ClusterConfig exists
  ClusterConfig is_struct

  ClusterConfig {
    # Scenario 3, 4, 5 and 6
    ZoneAwarenessEnabled exists
    ZoneAwarenessEnabled == true

    InstanceCount exists
    InstanceCount >= 3
  }
}

# Utility Rules
# rule is_cfn_template(doc) {
%doc {
  AWSTemplateFormatVersion exists or Resources exists
}
CT.OPENSEARCH.PR.14 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    ClusterConfig:
      InstanceType: t3.small.search
      InstanceCount: 3
      ZoneAwarenessEnabled: true
      ZoneAwarenessConfig:
        AvailabilityZoneCount: 3
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
Properties:
  EngineVersion: OpenSearch_1.3
  ClusterConfig:
    InstanceType: t3.small.search
    ZoneAwarenessEnabled: false
    InstanceCount: 2
  EBSOptions:
    EBSEnabled: true
    Iops: '3000'
    VolumeSize: '10'
    VolumeType: gp3
  AccessPolicies:
    Version: '2012-10-17'
    Statement:
      - Effect: Deny
        Principal:
          AWS: '*'
        Action: es:*
        Resource: '*'

[CT.OPENSEARCH.PR.15] Require an Amazon OpenSearch Service domain to use fine-grained access control

This control checks whether Amazon OpenSearch Service domains have fine-grained access control enabled.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::OpenSearchService::Domain
- **AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.15 rule specification](#)
Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.OPENSEARCH.PR.15 rule specification
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: CT.OPENSEARCH.PR.15 example templates

Explanation

Fine-grained access control offers additional ways of controlling access to your data on Amazon OpenSearch Service.

Usage considerations

- Fine-grained access control requires that advanced security options must be enabled on Amazon OpenSearch Service domains.
- To enable advanced security options on an Amazon OpenSearch Service domain, you must enable encryption of data at rest by means of the EncryptionAtRestOptions property, node-to-node encryption by means of the NodeToNodeEncryptionOptions property, and enforce HTTPS connections by means of the EnforceHTTPS property within DomainEndpointOptions.

Remediation for rule failure

Within AdvancedSecurityOptions, set Enabled to true, set InternalUserDatabaseEnabled to true or false, and set MasterUserOptions with an options configuration for your master user.

The examples that follow show how to implement this remediation.

Amazon OpenSearch Service Domain - Example

An Amazon OpenSearch Service domain configured with fine-grained access control. The example is shown in JSON and in YAML.

JSON example
{  
  "OpenSearchServiceDomain": {  
    "Type": "AWS::OpenSearchService::Domain",  
    "Properties": {  
      "EngineVersion": "OpenSearch_1.3",  
      "ClusterConfig": {  
        "InstanceCount": "1",  
        "InstanceType": "t3.small.search"  
      },  
      "EBSOptions": {  
        "EBSEnabled": true,  
        "Iops": "3000",  
        "VolumeSize": "10",  
        "VolumeType": "gp3"  
      },  
      "AccessPolicies": {  
        "Version": "2012-10-17",  
        "Statement": [  
          {  
            "Effect": "Deny",  
            "Principal": {  
              "AWS": "*"  
            },  
            "Action": "es:*",  
            "Resource": "*"  
          }  
        ]  
      },  
      "NodeToNodeEncryptionOptions": {  
        "Enabled": true  
      },  
      "EncryptionAtRestOptions": {  
        "Enabled": true  
      },  
      "DomainEndpointOptions": {  
        "EnforceHTTPS": true  
      },  
      "AdvancedSecurityOptions": {  
        "Enabled": true,  
        "InternalUserDatabaseEnabled": false,  
        "MasterUserOptions": {  
          "MasterUserARN": {  
            "Fn::GetAtt": [  
              "IAMRole",  
              "*"  
            ]  
          }  
        }  
      }  
    }  
  }"}
YAML example

OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    NodeToNodeEncryptionOptions:
      Enabled: true
    EncryptionAtRestOptions:
      Enabled: true
    DomainEndpointOptions:
      EnforceHTTPS: true
    AdvancedSecurityOptions:
      Enabled: true
      InternalUserDatabaseEnabled: false
      MasterUserOptions:
CT.OPENSEARCH.PR.15 rule specification

# ####################################################################
##       Rule Specification        ##
# ####################################################################
#
# Rule Identifier:
#   opensearch_fine_grained_access_control_enabled_check
#
# Description:
#   This control checks whether Amazon OpenSearch Service domains have fine-grained
#   access control enabled.
#
# Reports on:
#   AWS::OpenSearchService::Domain
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any OpenSearch Service domain
#     resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an OpenSearch Service domain resource
#     And: 'AdvancedSecurityOptions' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document

MasterUserARN: !GetAtt 'IAMRole.Arn'
# And: The input document contains an OpenSearch Service domain resource
# And: 'AdvancedSecurityOptions' has been provided
# And: 'Enabled' in 'AdvancedSecurityOptions' has not been provided or
# has been provided and set to a value other than bool(true)
# And: 'InternalUserDatabaseEnabled' in 'AdvancedSecurityOptions' has not been
# provided or provided and set to a
# non boolean value
# And: 'MasterUserOptions' in 'AdvancedSecurityOptions' has not been provided or
# provided and set to a value
# other than a struct
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service domain resource
# And: 'AdvancedSecurityOptions' has been provided
# And: 'Enabled' in 'AdvancedSecurityOptions' has been provided and set to
# bool(true)
# And: 'InternalUserDatabaseEnabled' in 'AdvancedSecurityOptions' has not been
# provided or provided and set to a
# non boolean value
# And: 'MasterUserOptions' in 'AdvancedSecurityOptions' has not been provided or
# provided and set to a value
# other than a struct
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service domain resource
# And: 'AdvancedSecurityOptions' has been provided
# And: 'Enabled' in 'AdvancedSecurityOptions' has been provided and set to
# bool(true)
# And: 'InternalUserDatabaseEnabled' in 'AdvancedSecurityOptions' has been
# provided and set to a
# boolean value
# And: 'MasterUserOptions' in 'AdvancedSecurityOptions' has not been provided or
# provided and set to a value
# other than a struct
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service domain resource
# And: 'AdvancedSecurityOptions' has been provided
And: 'Enabled' in 'AdvancedSecurityOptions' has been provided and set to 
   bool(true)
And: 'InternalUserDatabaseEnabled' in 'AdvancedSecurityOptions' has not been 
   provided or provided and set to a 
   non boolean value
And: 'MasterUserOptions' in 'AdvancedSecurityOptions' has been provided and set 
   to a struct
   Then: FAIL
Scenario: 7
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook 
   document
And: The input document contains an OpenSearch Service domain resource 
And: 'AdvancedSecurityOptions' has been provided 
And: 'Enabled' in 'AdvancedSecurityOptions' has been provided and set to 
   bool(true)
And: 'InternalUserDatabaseEnabled' in 'AdvancedSecurityOptions' has been 
   provided and set to a 
   boolean value
And: 'MasterUserOptions' in 'AdvancedSecurityOptions' has been provided and set 
   to a struct
   Then: PASS

# Constants
let OPENSEARCH_SERVICE_DOMAIN_TYPE = "AWS::OpenSearchService::Domain"
let INPUT_DOCUMENT = this

# Assignments
let opensearch_service_domains = Resources.*[ Type == %OPENSEARCH_SERVICE_DOMAIN_TYPE ]

# Primary Rules
rule opensearch_fine_grained_access_control_enabled_check when 
is_cfn_template(%INPUT_DOCUMENT)
%opensearch_service_domains not empty {
   check(%opensearch_service_domains.Properties)
   <
   [CT.OPENSEARCH.PR.15]: Require an Amazon OpenSearch Service domain to use fine- 
   grained access control
[FIX]: Within 'AdvancedSecurityOptions', set 'Enabled' to 'true', set 'InternalUserDatabaseEnabled' to 'true' or 'false', and set 'MasterUserOptions' with an options configuration for your master user.

rule opensearch_fine_grained_access_control_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %OPENSEARCH_SERVICE_DOMAIN_TYPE) {
  check(%INPUT_DOCUMENT.%OPENSEARCH_SERVICE_DOMAIN_TYPE.resourceProperties)
  <<
  [CT.OPENSEARCH.PR.15]: Require an Amazon OpenSearch Service domain to use fine-grained access control
  [FIX]: Within 'AdvancedSecurityOptions', set 'Enabled' to 'true', set 'InternalUserDatabaseEnabled' to 'true' or 'false', and set 'MasterUserOptions' with an options configuration for your master user.
  >>
}

# # Parameterized Rules #
#
rule check(opensearch_service_domain) {
  %opensearch_service_domain {
    # Scenario 2
    AdvancedSecurityOptions exists
    AdvancedSecurityOptions is_struct

    AdvancedSecurityOptions {
      # Scenarios 3, 4, 5, 6 and 7
      Enabled exists
      Enabled == true

      InternalUserDatabaseEnabled exists
      InternalUserDatabaseEnabled in [ true, false ]

      MasterUserOptions exists
      MasterUserOptions is_struct
    }
  }
}

# # Utility Rules #

Proactive controls
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

**CT.OPENSEARCH.PR.15 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

Resources:
IAMRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS:
              Ref: AWS::AccountId
          Action:
            - sts:AssumeRole
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
AccessPolicies:
  Version: '2012-10-17'
  Statement:
    - Effect: Deny
      Principal:
        AWS: '*'
      Action: es:*
      Resource: '***'

NodeToNodeEncryptionOptions:
  Enabled: true

EncryptionAtRestOptions:
  Enabled: true

DomainEndpointOptions:
  EnforceHTTPS: true

AdvancedSecurityOptions:
  Enabled: false

[CT.OPENSEARCH.PR.16] Require an Amazon OpenSearch Service domain to use TLSv1.2

This control checks whether Amazon OpenSearch Service domains are configured to require HTTPS with a minimum TLS version of TLSv1.2.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::OpenSearchService::Domain

**AWS CloudFormation guard rule:** [CT.OPENSEARCH.PR.16 rule specification]

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.OPENSEARCH.PR.16 rule specification]
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.OPENSEARCH.PR.16 example templates]

**Explanation**

Proactive controls
HTTPS (TLS) can help prevent potential attackers from using person-in-the-middle, or similar attacks, to eavesdrop on or manipulate network traffic. Only encrypted connections over HTTPS (TLS) should be allowed. Encrypting data in transit can affect performance. You should test your application with this feature to understand the performance profile and the effects of TLS. TLS 1.2 provides several security enhancements over previous versions of TLS.

**Remediation for rule failure**


The examples that follow show how to implement this remediation.

**Amazon OpenSearch Service Domain - Example**

An Amazon OpenSearch Service domain configured to require all traffic to the domain arrive over HTTPS with a minimum TLS version of TLSv1.2. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "OpenSearchServiceDomain": {
        "Type": "AWS::OpenSearchService::Domain",
        "Properties": {
            "EngineVersion": "OpenSearch_1.3",
            "ClusterConfig": {
                "InstanceCount": "1",
                "InstanceType": "t3.small.search"
            },
            "EBSOptions": {
                "EBSEnabled": true,
                "Iops": "3000",
                "VolumeSize": "10",
                "VolumeType": "gp3"
            },
            "AccessPolicies": {
                "Version": "2012-10-17",
                "Statement": [
                    {
                        "Effect": "Deny",
                        "Principal": {
                            "AWS": "*"
                        }
                    }
                ]
            }
        }
    }
}
```
YAML example

OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
    DomainEndpointOptions:
      EnforceHTTPS: true
CT.OPENSEARCH.PR.16 rule specification

# Rule Identifier:
# opensearch_https_required_check
#
# Description:
# This control checks whether Amazon OpenSearch Service domains are configured to
# require HTTPS with a minimum TLS version of TLSv1.2.
#
# Reports on:
# AWS::OpenSearchService::Domain
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any OpenSearch Service domain
resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service domain resource
# And: 'DomainEndpointOptions' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an OpenSearch Service domain resource
# And: 'DomainEndpointOptions' has been provided
# And: 'EnforceHTTPS' in 'DomainEndpointOptions' has not been provided or
# has been provided and set to a value other than bool(true)
# And: 'TLSSecurityPolicy' in 'DomainEndpointOptions' has not been provided or

Proactive controls 1830
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an OpenSearch Service domain resource
# And: 'DomainEndpointOptions' has been provided
# And: 'EnforceHTTPS' in 'DomainEndpointOptions' has been provided and set to bool(true)
# And: 'TLSSecurityPolicy' in 'DomainEndpointOptions' has not been provided or has been provided and set to a value other than 'Policy-Min-TLS-1-2-2019-07'
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an OpenSearch Service domain resource
# And: 'DomainEndpointOptions' has been provided
# And: 'EnforceHTTPS' in 'DomainEndpointOptions' has not been provided or has been provided and set to a value other than bool(true)
# And: 'TLSSecurityPolicy' in 'DomainEndpointOptions' has been provided and set to 'Policy-Min-TLS-1-2-2019-07'
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an OpenSearch Service domain resource
# And: 'DomainEndpointOptions' has been provided
# And: 'EnforceHTTPS' in 'DomainEndpointOptions' has been provided and set to bool(true)
# And: 'TLSSecurityPolicy' in 'DomainEndpointOptions' has been provided and set to 'Policy-Min-TLS-1-2-2019-07'
# Then: PASS

# Constants

let OPENSEARCH_SERVICE_DOMAIN_TYPE = "AWS::OpenSearchService::Domain"
let INPUT_DOCUMENT = this

# Assignments
let opensearch_service_domains = Resources.*[ Type == %OPENSEARCH_SERVICE_DOMAIN_TYPE ]

# Primary Rules

rule opensearch_https_required_check when is_cfn_template(%INPUT_DOCUMENT)
    %opensearch_service_domains not empty {
        check(%opensearch_service_domains.Properties) <<
        [CT.OPENSEARCH.PR.16]: Require an Amazon OpenSearch Service domain to use TLSv1.2
        [FIX]: Within 'DomainEndpointOptions', set 'EnforceHTTPS' to 'true' and set 'TLSSecurityPolicy' to 'Policy-Min-TLS-1-2-2019-07'.
        >>
    }

rule opensearch_https_required_check when is_cfn_hook(%INPUT_DOCUMENT,
    %OPENSEARCH_SERVICE_DOMAIN_TYPE) {
    check(%INPUT_DOCUMENT.%OPENSEARCH_SERVICE_DOMAIN_TYPE.resourceProperties) <<
    [CT.OPENSEARCH.PR.16]: Require an Amazon OpenSearch Service domain to use TLSv1.2
    [FIX]: Within 'DomainEndpointOptions', set 'EnforceHTTPS' to 'true' and set 'TLSSecurityPolicy' to 'Policy-Min-TLS-1-2-2019-07'.
    >>
}

# Parameterized Rules

rule check(opensearch_service_domain) {
    %opensearch_service_domain {
        # Scenario 2
        DomainEndpointOptions exists
        DomainEndpointOptions is_struct

        DomainEndpointOptions {
            # Scenarios 3, 4, 5 and 6
            EnforceHTTPS exists
            EnforceHTTPS == true

            TLSSecurityPolicy exists
            TLSSecurityPolicy in %ALLOWED_TLS_POLICIES
        }
    }
}
CT.OPENSEARCH.PR.16 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
OpenSearchServiceDomain:
  Type: AWS::OpenSearchService::Domain
  Properties:
    EngineVersion: OpenSearch_1.3
    ClusterConfig:
      InstanceCount: '1'
      InstanceType: t3.small.search
    EBSOptions:
      EBSEnabled: true
      Iops: '3000'
      VolumeSize: '10'
      VolumeType: gp3
    AccessPolicies:
      Version: '2012-10-17'
      Statement:
        - Effect: Deny
          Principal:
            AWS: '*'
          Action: es:*
          Resource: '*'
Amazon Relational Database Service (Amazon RDS) controls

Topics

- [CT.RDS.PR.1] Require that an Amazon RDS database instance is configured with multiple Availability Zones
- [CT.RDS.PR.2] Require an Amazon RDS database instance or cluster to have enhanced monitoring configured
- [CT.RDS.PR.3] Require an Amazon RDS cluster to have deletion protection configured
- [CT.RDS.PR.4] Require an Amazon RDS database cluster to have AWS IAM database authentication configured
- [CT.RDS.PR.5] Require an Amazon RDS database instance to have minor version upgrades configured
- [CT.RDS.PR.6] Require an Amazon RDS database cluster to have backtracking configured
- [CT.RDS.PR.7] Require Amazon RDS database instances to have IAM authentication configured
- [CT.RDS.PR.8] Require an Amazon RDS database instance to have automatic backups configured
- [CT.RDS.PR.9] Require an Amazon RDS database cluster to copy tags to snapshots
- [CT.RDS.PR.10] Require an Amazon RDS database instance to copy tags to snapshots
- [CT.RDS.PR.11] Require an Amazon RDS database instance to have a VPC configuration
- [CT.RDS.PR.12] Require an Amazon RDS event subscription to have critical cluster events configured
- [CT.RDS.PR.13] Require any Amazon RDS instance to have deletion protection configured
- [CT.RDS.PR.14] Require an Amazon RDS database instance to export logs to Amazon CloudWatch Logs by means of the EnableCloudwatchLogsExports property
- [CT.RDS.PR.15] Require that an Amazon RDS instance does not create DB security groups
- [CT.RDS.PR.16] Require an Amazon RDS database cluster to have encryption at rest configured
- [CT.RDS.PR.17] Require an Amazon RDS event notification subscription to have critical database instance events configured
- [CT.RDS.PR.18] Require an Amazon RDS event notification subscription to have critical database parameter group events configured
- [CT.RDS.PR.19] Require an Amazon RDS event notifications subscription to have critical database security group events configured
- [CT.RDS.PR.20] Require an Amazon RDS database instance not to use a database engine default port
[CT.RDS.PR.21] Require an Amazon RDS DB cluster to have a unique administrator username

[CT.RDS.PR.22] Require an Amazon RDS database instance to have a unique administrator username

[CT.RDS.PR.23] Require an Amazon RDS database instance to not be publicly accessible

[CT.RDS.PR.24] Require an Amazon RDS database instance to have encryption at rest configured

[CT.RDS.PR.25] Require an Amazon RDS database cluster to export logs to Amazon CloudWatch Logs by means of the EnableCloudwatchLogsExports property

[CT.RDS.PR.26] Require an Amazon Relational Database Service DB Proxy to require Transport Layer Security (TLS) connections

[CT.RDS.PR.27] Require an Amazon Relational Database Service DB cluster parameter group to require Transport Layer Security (TLS) connections for supported engine types

[CT.RDS.PR.28] Require an Amazon Relational Database Service DB parameter group to require Transport Layer Security (TLS) connections for supported engine types

[CT.RDS.PR.29] Require an Amazon RDS cluster not be configured to be publicly accessible by means of the 'PubliclyAccessible' property

[CT.RDS.PR.30] Require that an Amazon RDS database instance has encryption at rest configured to use a KMS key that you specify for supported engine types

[CT.RDS.PR.1] Require that an Amazon RDS database instance is configured with multiple Availability Zones

This control checks whether high availability is configured for your Amazon Relational Database Service (RDS) database instances.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.1 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.1 rule specification](#)
Explanation

Amazon RDS database (DB) instances should be configured for multiple Availability Zones (AZs). This configuration increases the availability of the stored data. Deployment into multiple Availability Zones allows for automated failover, in case an Availability Zone has an outage, and during regular RDS maintenance.

Usage considerations

- This control applies only to Amazon RDS DB engine types mariadb, mysql, oracle-ee, oracle-ee-cdb, oracle-se2, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex and sqlserver-web.

Remediation for rule failure

Set MultiAZ to true.

The examples that follow show how to implement this remediation.

Amazon RDS DB Instance - Example

Amazon RDS database instance configured with multiple Availability Zones. The example is shown in JSON and in YAML.

JSON example

```json
{
    "DBInstance": {
        "Type": "AWS::RDS::DBInstance",
        "Properties": {
            "Engine": "postgres",
            "EngineVersion": 14.2,
            "DBInstanceClass": "db.m5.large",
            "StorageType": "gp2",
            "AllocatedStorage": 5,
            "MasterUsername": {
```
"Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}",
"MasterUserPassword": {
    "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}",
    "MultiAZ": true
},
"DeletionPolicy": "Delete"
}

**YAML example**

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    MultiAZ: true
    DeletionPolicy: Delete

**CT.RDS.PR.1 rule specification**

```# ###################################
##       Rule Specification        ##
#####################################
#
# Rule Identifier:
#   rds_instance_multi_az_support_check
#
# Description:
#   This control checks whether high availability is configured for your Amazon Relational Database Service (RDS) database instances.
```
# Reports on:
#   AWS::RDS::DBInstance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any RDS DB instance resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is not one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb',
#          'oracle-se2',
#          'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-
ex', 'sqlserver-web'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb',
#          'oracle-se2',
#          'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-
ex', 'sqlserver-web'
#     And: 'MultiAZ' has not been specified
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb',
#          'oracle-se2',
#          'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-
ex', 'sqlserver-web'
#     And: 'MultiAZ' has been specified
And: 'MultiAZ' has been set to bool(false)
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
And: The input document contains an RDS DB instance resource
And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb',
'oracle-se2',
'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-
ex', 'sqlserver-web'
And: 'MultiAZ' has been specified
And: 'MultiAZ' has been set to bool(true)
Then: PASS

# Constants
let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let SUPPORTED_RDS_INSTANCE_ENGINES = [
  "mariadb", "mysql", "oracle-ee", "oracle-ee-cdb", "oracle-se2",
  "oracle-se2-cdb", "postgres", "sqlserver-ee", "sqlserver-se",
  "sqlserver-ex", "sqlserver-web"
]

# Assignments
let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

# Primary Rules
rule rds_instance_multi_az_support_check when is_cfn_template(%INPUT_DOCUMENT)
  rds_db_instances not empty {
    check(%rds_db_instances.Properties)
    <<
    [CT.RDS.PR.1]: Require that an Amazon RDS database instance is configured with
    multiple Availability Zones
    [FIX]: Set 'MultiAZ' to 'true'.
    >>
  }
rule rds_instance_multi_az_support_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties) <<
    [CT.RDS.PR.1]: Require that an Amazon RDS database instance is configured with multiple Availability Zones
    [FIX]: Set 'MultiAZ' to 'true'.
    >>
}

# Parameterized Rules
#
rule check(rds_db_instance) {
    %rds_db_instance [filter_engine(this)] {
        # Scenario 3
        MultiAZ exists
        # Scenario 4 and 5
        MultiAZ == true
    }
}

rule filter_engine(db_properties) {
    %db_properties {
        # Scenario 2
        Engine exists
        Engine is_string
        Engine in %SUPPORTED_RDS_INSTANCE_ENGINES
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.RDS.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS instance secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "testUser"}'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: '@\'

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MultiAZ: true
    DeletionPolicy: Delete

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
[CT.RDS.PR.2] Require an Amazon RDS database instance or cluster to have enhanced monitoring configured

This control checks whether enhanced monitoring is activated for Amazon Relational Database Service (RDS) instances.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.2 rule specification](#)

Details and examples
For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.RDS.PR.2 rule specification

For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.RDS.PR.2 example templates

Explanation

In Amazon RDS, enhanced monitoring facilitates a more rapid response to performance changes in underlying infrastructure. These performance changes could result in a lack of availability of the data. Enhanced monitoring provides real-time metrics of the operating system on which your RDS DB instance runs. An agent, installed on the instance, can obtain metrics more accurately than is possible from the hypervisor layer.

Enhanced monitoring metrics are useful when you want to see how different processes or threads on a database (DB) instance use the CPU.

Usage considerations

- This control applies only to Amazon RDS DB engine types aurora, aurora-mysql, aurora-postgresql, mariadb, mysql, oracle-ee, oracle-ee-cdb, oracle-se2, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex and sqlserver-web

Remediation for rule failure

Set MonitoringInterval to a supported value (1, 5, 10, 15, 30, 60), and set MonitoringRoleArn to the ARN of an AWS IAM role.

The examples that follow show how to implement this remediation.

Amazon RDS DB Instance - Example

Amazon RDS DB instance configured with enhanced monitoring. The example is shown in JSON and in YAML.

JSON example
```json
{
  "DBInstance": {
    "Type": "AWS::RDS::DBInstance",
    "Properties": {
      "Engine": "postgres",
      "EngineVersion": 14.2,
      "DBInstanceClass": "db.m5.large",
      "StorageType": "gp2",
      "AllocatedStorage": 5,
      "MasterUsername": {
        "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
      },
      "MasterUserPassword": {
        "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
      },
      "MonitoringInterval": 30,
      "MonitoringRoleArn": {
        "Fn::GetAtt": [
          "MonitoringIAMRole",
          "Arn"
        ]
      }
    },
    "DeletionPolicy": "Delete"
  }
}
```

**YAML example**

```
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    MonitoringInterval: 30
    MonitoringRoleArn: !GetAtt 'MonitoringIAMRole.Arn'
```
## Rule Specification

### Rule Identifier:

- rds_instance_enhanced_monitoring_enabled_check

### Description:

This control checks whether enhanced monitoring is activated for Amazon Relational Database Service (RDS) instances.

### Reports on:

- AWS::RDS::DBInstance

### Evaluates:

- AWS CloudFormation, AWS CloudFormation hook

### Rule Parameters:

- None

### Scenarios:

#### Scenario: 1

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

And: The input document does not contain any RDS DB instance resources

Then: SKIP

#### Scenario: 2

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

And: The input document contains an RDS DB instance resource

And: 'Engine' is not one of 'aurora', 'aurora-mysql', 'aurora-postgresql', 'mariadb', 'mysql', 'oracle-ee', 'oracle-se2', 'oracle-se1', 'oracle-se', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'

Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql',
#      'mariadb', 'mysql',
#      'oracle-ee', 'oracle-se2', 'oracle-se1', 'oracle-se', 'postgres',
#      'sqlserver-ee',
#      'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# And: 'MonitoringInterval' has not been specified
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql',
#      'mariadb', 'mysql',
#      'oracle-ee', 'oracle-se2', 'oracle-se1', 'oracle-se', 'postgres',
#      'sqlserver-ee',
#      'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# And: 'MonitoringInterval' has been specified
# And: 'MonitoringInterval' has been set to '0'
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql',
#      'mariadb', 'mysql',
#      'oracle-ee', 'oracle-se2', 'oracle-se1', 'oracle-se', 'postgres',
#      'sqlserver-ee',
#      'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# And: 'MonitoringInterval' has been specified
# And: 'MonitoringInterval' has not been set to a value from the list 1, 5, 10, 15, 30, 60
# Then: FAIL

# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql',
#      'mariadb', 'mysql',
#      'oracle-ee', 'oracle-se2', 'oracle-se1', 'oracle-se', 'postgres',
#      'sqlserver-ee',
# 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
#       And: 'MonitoringInterval' has been specified
#       And: 'MonitoringInterval' has been set to a value from the list 1, 5, 10, 15, 
#            30, 60
#       And: 'MonitoringRoleArn' has not been specified or specified as an empty string
#       Then: FAIL
# Scenario: 7
#       Given: The input document is an AWS CloudFormation or AWS CloudFormation hook 
#       document
#       And: The input document contains an RDS DB instance resource
#       And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql',
#            'mariadb', 'mysql',
#            'oracle-ee', 'oracle-se2', 'oracle-se1', 'oracle-se', 'postgres',
#            'sqlserver-ee',
#            'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
#       And: 'MonitoringInterval' has been specified
#       And: 'MonitoringInterval' has been set to a value from the list 1, 5, 10, 15, 
#            30, 60
#       And: 'MonitoringRoleArn' has been specified with a non-empty string or valid 
#            local reference
#       Then: PASS
#
# # Constants
# #
# let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let SUPPORTED_RDS_INSTANCE_ENGINES = [
  "aurora", "aurora-mysql", "aurora-postgresql", "mariadb", "mysql",
  "oracle-ee", "oracle-se2", "oracle-se1", "oracle-se", "postgres",
  "sqlserver-ee",
  "sqlserver-se", "sqlserver-ex", "sqlserver-web"
]
let ALLOWED_EM_VALUES = [1, 5, 10, 15, 30, 60]
#
# # Assignments
# #
let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]
#
# # Primary Rules
#
rule rds_instance_enhanced_monitoring_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
    %rds_db_instances not empty {
        check(%rds_db_instances.Properties)
<<
[CT.RDS.PR.2]: Require an Amazon RDS database instance or cluster to have enhanced monitoring configured
[FIX]: Set 'MonitoringInterval' to a supported value (1, 5, 10, 15, 30, 60), and set 'MonitoringRoleArn' to the ARN of an AWS IAM role.
>>}
}

rule rds_instance_enhanced_monitoring_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
<<
[CT.RDS.PR.2]: Require an Amazon RDS database instance or cluster to have enhanced monitoring configured
[FIX]: Set 'MonitoringInterval' to a supported value (1, 5, 10, 15, 30, 60), and set 'MonitoringRoleArn' to the ARN of an AWS IAM role.
>>}

#
# Parameterized Rules
#
rule check(rds_db_instance) {
    %rds_db_instance [filter_engine(this)] {
        # Scenario: 3, 4, 5, 6 and 7
        MonitoringInterval exists
        MonitoringInterval in %ALLOWED_EM_VALUES
        # Scenario: 6 and 7
        MonitoringRoleArn exists
        check_for_valid_monitor_role_arn(MonitoringRoleArn)
    }
}

rule filter_engine(db_properties) {
    %db_properties {
        # Scenario: 2
        Engine exists
        Engine is_string
        Engine in %SUPPORTED_RDS_INSTANCE_ENGINES
    }
}
rule check_for_valid_monitor_role_arn(iam_role_arn) {
  %iam_role_arn {
    check_is_string_and_not_empty(this) or
    check_local_references(%INPUT_DOCUMENT, this, "AWS::IAM::Role")
  }
}

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /\A\s*\z/
  }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
  %reference_properties {
    'Fn::GetAtt' {
      query_for_resource(%doc, this[0], %referenced_resource_type)
      "Local Stack reference was invalid"
    } or Ref {
      query_for_resource(%doc, this, %referenced_resource_type)
      "Local Stack reference was invalid"
    }
  }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
  let referenced_resource = %doc.Resources[ keys == %resource_key ]
CT.RDS.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  MonitoringIAMRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: "2012-10-17"
        Statement:
          - Effect: "Allow"
            Principal:
              Service:
                - "monitoring.rds.amazonaws.com"
            Action:
              - "sts:AssumeRole"
            Path: "/
      ManagedPolicyArns:
        - arn:aws:iam::aws:policy/service-role/AmazonRDSEnhancedMonitoringRole
  DBInstanceSecret:
    Type: AWS::SecretsManager::Secret
    Properties:
      Description: RDS DB instance secret
      GenerateSecretString:
        SecretStringTemplate: '{"username": "testUser"}'
        GenerateStringKey: password
        PasswordLength: 22
        ExcludeCharacters: '"/@\'
  DBInstance:
    Type: AWS::RDS::DBInstance
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB instance secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "testUser"}'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: '@/\'
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername:
      Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::username}'
    MasterUserPassword:
      Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::password}'
[CT.RDS.PR.3] Require an Amazon RDS cluster to have deletion protection configured

This control checks whether your Amazon Relational Database Service (Amazon RDS) cluster has deletion protection activated.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBCluster
- **AWS CloudFormation guard rule:** [CT.RDS.PR.3 rule specification](#)

### Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.3 example templates](#)

### Explanation

Enabling cluster deletion protection is an additional layer of protection against accidental database deletion or deletion by an unauthorized entity.

When deletion protection is enabled, an Amazon RDS cluster cannot be deleted. Before a deletion request can succeed, deletion protection must be deactivated.

### Remediation for rule failure

Set the value of the DeletionProtection parameter to true.

The examples that follow show how to implement this remediation.
Amazon RDS DB Cluster - Example

Amazon RDS DB cluster with deletion protection enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "RDSDBCluster": {
    "Type": "AWS::RDS::DBCluster",
    "Properties": {
      "Engine": "aurora",
      "MasterUsername": {
        "Fn::Sub": "{{resolve:secretsmanager:${RDSClusterSecret}::username}}"
      },
      "MasterUserPassword": {
        "Fn::Sub": "{{resolve:secretsmanager:${RDSClusterSecret}::password}}"
      },
      "DBSubnetGroupName": {
        "Ref": "TestDBSubnetGroup"
      },
      "DeletionProtection": true
    }
  }
}
```

**YAML example**

```yaml
RDSDBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora
    MasterUsername: !Sub '{{resolve:secretsmanager:${RDSClusterSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${RDSClusterSecret}::password}}'
    DBSubnetGroupName: !Ref 'TestDBSubnetGroup'
    DeletionProtection: true
```
CT.RDS.PR.3 rule specification

# ###################################
##       Rule Specification        ##
###################################
#
# Rule Identifier:
#   rds_cluster_deletion_protection_enabled_check
#
# Description:
#   Checks if an Amazon Relational Database Service (Amazon RDS) cluster has deletion protection enabled.
#
# Reports on:
#   AWS::RDS::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document does not contain any RDS DB cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an RDS DB cluster resource
#     And: 'DeletionProtection' has not been specified
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an RDS DB cluster resource
#     And: 'DeletionProtection' has been specified
#     And: 'DeletionProtection' has been set to bool(false)
#     Then: FAIL
#   Scenario: 4

Proactive controls
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an RDS DB cluster resource
#     And: 'DeletionProtection' has been specified
#     And: 'DeletionProtection' has been set to bool(true)
#     Then: PASS

# Constants
#
let RDS_DB_CLUSTER_TYPE = "AWS::RDS::DBCluster"
let INPUT_DOCUMENT = this

# Assignments
#
let db_clusters = Resources.*[ Type == %RDS_DB_CLUSTER_TYPE ]

# Primary Rules
#
rule rds_cluster_deletion_protection_enabled_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %db_clusters not empty {
    check(%db_clusters.Properties)
    <<
    [CT.RDS.PR.3]: Require an Amazon RDS cluster to have deletion protection configured
    [FIX]: Set the value of the 'DeletionProtection' parameter to true.
    >>
  }

rule rds_cluster_deletion_protection_enabled_check when is_cfn_hook(%INPUT_DOCUMENT,
  %RDS_DB_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_DB_CLUSTER_TYPE.resourceProperties)
  <<
  [CT.RDS.PR.3]: Require an Amazon RDS cluster to have deletion protection configured
  [FIX]: Set the value of the 'DeletionProtection' parameter to true.
  >>
}

rule check(properties) {
%properties {
  # Scenario 2
  DeletionProtection exists
  # Scenario 3 and 4
  DeletionProtection == true
}
}

# Utility Rules

# rule is_cfn_template(doc) {
%doc {
  AWSTemplateFormatVersion exists or
  Resources exists
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.RDS.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsHostnames: true
    EnableDnsSupport: true
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
CidrBlock: 10.0.0.0/25
AvailabilityZone:
  Fn::Select:
    - 0
    - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.0.128/25
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
    VpcId:
      Ref: VPC
DBSubnetGroup:
  Type: AWS::RDS::DBSubnetGroup
  Properties:
    DBSubnetGroupDescription: Example DB subnet group
    SubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo
RDSClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS cluster secret
    GenerateSecretString:
      SecretStringTemplate: \""{"username": "exampleuser"}\"
      GenerateStringKey: password
      PasswordLength: 32
      ExcludeCharacters: "/@\"
RDSCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora-mysql
    MasterUsername:
      Fn::Sub: \"{{resolve:secretsmanager:${RDSClusterSecret}::username}}\"
    MasterUserPassword:
      Fn::Sub: \"{{resolve:secretsmanager:${RDSClusterSecret}::password}}\"
    DBSubnetGroupName:
      Ref: DBSubnetGroup
    DeletionProtection: true

Proactive controls
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  VPC:
    Type: AWS::EC2::VPC
    Properties:
      CidrBlock: 10.0.0.0/16
      EnableDnsHostnames: true
      EnableDnsSupport: true
  SubnetOne:
    Type: AWS::EC2::Subnet
    Properties:
      VpcId:
        Ref: VPC
      CidrBlock: 10.0.0.0/25
      AvailabilityZone:
        Fn::Select:
        - 0
        - Fn::GetAZs: ''
  SubnetTwo:
    Type: AWS::EC2::Subnet
    Properties:
      CidrBlock: 10.0.0.128/25
      AvailabilityZone:
        Fn::Select:
        - 1
        - Fn::GetAZs: ''
      VpcId:
        Ref: VPC
  DBSubnetGroup:
    Type: AWS::RDS::DBSubnetGroup
    Properties:
      DBSubnetGroupDescription: Example DB subnet group
      SubnetIds:
        - Ref: SubnetOne
        - Ref: SubnetTwo
  RDSClusterSecret:
    Type: AWS::SecretsManager::Secret
    Properties:
Description: RDS cluster secret
GenerateSecretString:
   SecretStringTemplate: '{"username": "exampleuser"}'
GenerateStringKey: password
PasswordLength: 32
ExcludeCharacters: "/@"'

RDSCluster:
   Type: AWS::RDS::DBCluster
   Properties:
      Engine: aurora-mysql
      MasterUsername:
         Fn::Sub: "{{resolve:secretsmanager:${RDSClusterSecret}::username}}"
      MasterUserPassword:
         Fn::Sub: "{{resolve:secretsmanager:${RDSClusterSecret}::password}}"
      DBSubnetGroupName:
         Ref: DBSubnetGroup
      DeletionProtection: false

[CT.RDS.PR.4] Require an Amazon RDS database cluster to have AWS IAM database authentication configured

This control checks whether an Amazon Relational Database Service (RDS) database (DB) cluster has AWS IAM database authentication activated.

- **Control objective:** Use strong authentication
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBCluster
- **AWS CloudFormation guard rule:** [CT.RDS.PR.4 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.4 example templates](#)
**Explanation**

IAM database authentication allows for password-free authentication to database instances. The authentication uses an authentication token. Network traffic to and from the database is encrypted using SSL.

**Usage considerations**

- This control applies only to Amazon RDS DB cluster engine types aurora, aurora-mysql and aurora-postgresql.

**Remediation for rule failure**

Set `EnableIAMDatabaseAuthentication` to true.

The examples that follow show how to implement this remediation.

**Amazon RDS DB Cluster - Example**

Amazon RDS DB cluster configured with AWS IAM database authentication. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "DBCluster": {
      "Type": "AWS::RDS::DBCluster",
      "Properties": {
         "Engine": "aurora-mysql",
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::password}}"
         },
         "DBSubnetGroupName": {
            "Ref": "DBSubnetGroup"
         },
         "EnableIAMDatabaseAuthentication": true
      }
   }
}
```
YAML example

DBCluster:
 Type: AWS::RDS::DBCluster
 Properties:
   Engine: aurora-mysql
   MasterUsername: !Sub '{${resolve:secretsmanager:${DBClusterSecret}::username}}'
   MasterUserPassword: !Sub '{${resolve:secretsmanager:${DBClusterSecret}::password}}'
   DBSubnetGroupName: !Ref 'DBSubnetGroup'
   EnableIAMDatabaseAuthentication: true

CT.RDS.PR.4 rule specification

# ###################################
##       Rule Specification        ##
#####################################
#
# Rule Identifier:
#   rds_cluster_iam_authentication_enabled_check
#
# Description:
#   This control checks whether an Amazon Relational Database Service (RDS) database
#   (DB) cluster has AWS IAM database authentication activated.
#
# Reports on:
#   AWS::RDS::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
And: The input document does not contain any RDS DB cluster resources
Then: SKIP

Scenario: 2
Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'Engine' provided is not one of 'aurora' or 'aurora-mysql' or 'aurora-postgresql'
Then: SKIP

Scenario: 3
Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'Engine' provided is one of 'aurora' or 'aurora-mysql' or 'aurora-postgresql'
And: 'EnableIAMDatabaseAuthentication' has not been provided
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'Engine' provided is one of 'aurora' or 'aurora-mysql' or 'aurora-postgresql'
And: 'EnableIAMDatabaseAuthentication' has been provided
And: 'EnableIAMDatabaseAuthentication' has been set to a value other than bool(true)
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'Engine' provided is one of 'aurora' or 'aurora-mysql' or 'aurora-postgresql'
And: 'EnableIAMDatabaseAuthentication' has been provided
And: 'EnableIAMDatabaseAuthentication' has been set to bool(true)
Then: PASS

# Constants

let RDS_DB_CLUSTER_TYPE = "AWS::RDS::DBCluster"
let SUPPORTED_DB_CLUSTER_ENGINES = ["aurora", "aurora-mysql","aurora-postgresql"]
let INPUT_DOCUMENT = this

# # Assignments #
let db_clusters = Resources.*[ Type == %RDS_DB_CLUSTER_TYPE ]

# # Primary Rules #
rule rds_cluster_iam_authentication_enabled_check when is_cfn_template(%INPUT_DOCUMENT)

%db_clusters not empty {
  check(%db_clusters.Properties)
  <<
  [CT.RDS.PR.4]: Require an Amazon RDS database cluster to have AWS IAM database authentication configured
  [FIX]: Set 'EnableIAMDatabaseAuthentication' to 'true'.
>>
}

rule rds_cluster_iam_authentication_enabled_check when is_cfn_hook(%INPUT_DOCUMENT,
  %RDS_DB_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_DB_CLUSTER_TYPE.resourceProperties)
  <<
  [CT.RDS.PR.4]: Require an Amazon RDS database cluster to have AWS IAM database authentication configured
  [FIX]: Set 'EnableIAMDatabaseAuthentication' to 'true'.
>>
}

rule check(db_cluster) {
  %db_cluster [ # Scenario 2
    filter_engine(this)
  ] {
    # Scenario 3
    EnableIAMDatabaseAuthentication exists
    # Scenario 4 and 5
    EnableIAMDatabaseAuthentication == true
  }
}

rule filter_engine(cluster_properties) {
  %cluster_properties {
# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.RDS.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsHostnames: true
    EnableDnsSupport: true
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/25
    AvailabilityZone:
      Fn::Select:
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.0.128/25
    AvailabilityZone: 
      Fn::Select: 
        - 1
      Fn::GetAZs: ''
  VpcId: 
    Ref: VPC

DBSubnetGroup:
  Type: AWS::RDS::DBSubnetGroup
  Properties:
    DBSubnetGroupDescription: DB subnet group for DBCluster
    SubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo

DBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasteruser"}'
      GenerateStringKey: password
      PasswordLength: 32
      ExcludeCharacters: "/@"\"

DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora-mysql
    MasterUsername:
      Fn::Sub: "{{resolve:secretsmanager:${DBClusterSecret}::username}}"
    MasterUserPassword:
      Fn::Sub: "{{resolve:secretsmanager:${DBClusterSecret}::password}}"

EnableIAMDatabaseAuthentication: true
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsHostnames: true
    EnableDnsSupport: true

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/25
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.0.128/25
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
    VpcId:
      Ref: VPC

DBSubnetGroup:
  Type: AWS::RDS::DBSubnetGroup
  Properties:
    DBSubnetGroupDescription: DB subnet group for DBCluster
    SubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo

DBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB cluster secret
    GenerateSecretString:
SecretStringTemplate: '{"username": "examplemasteruser"}'
GenerateStringKey: password
PasswordLength: 32
ExcludeCharacters: "/@\""\"

DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora-mysql
    MasterUsername:
      Fn::Sub: '{\{resolve:secretsmanager:${DBClusterSecret}::username\}}'
    MasterUserPassword:
      Fn::Sub: '{\{resolve:secretsmanager:${DBClusterSecret}::password\}}'

[CT.RDS.PR.5] Require an Amazon RDS database instance to have minor version upgrades configured

This control checks whether automatic minor version upgrades are enabled for an Amazon Relational Database Service (RDS) database instance.

- **Control objective:** Manage vulnerabilities
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.5 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.5 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.5 example templates](#)

Explanation
By activating automatic minor version upgrades, you can ensure that the latest minor version updates to the relational database management system (RDBMS) are installed. These upgrades might include security patches and bug fixes. Keeping up to date with patch installation is an important step in securing systems.

**Usage considerations**

- This control applies only to Amazon RDS DB engine types aurora, aurora-mysql, aurora-postgresql, mariadb, mysql, oracle-ee, oracle-ee-cdb, oracle-se2, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex and sqlserver-web.

**Remediation for rule failure**

Omit the `AutoMinorVersionUpgrade` property or set it to `true`.

The examples that follow show how to implement this remediation.

**Amazon RDS DB Instance - Example One**

Amazon RDS DB instance configured with automatic minor version upgrades, enabled by means of AWS CloudFormation defaults. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "DBInstance": {
      "Type": "AWS::RDS::DBInstance",
      "Properties": {
         "Engine": "postgres",
         "EngineVersion": 14.2,
         "DBInstanceClass": "db.m5.large",
         "StorageType": "gp2",
         "AllocatedStorage": 5,
         "MasterUsername": {
            "Fn::Sub": "{resolve:secretsmanager:${DBInstanceSecret}::username}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{resolve:secretsmanager:${DBInstanceSecret}::password}"  
         }
      }
   }
}
```
DeletionPolicy: "Delete"

YAML example

```
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    DeletionPolicy: Delete
```

The examples that follow show how to implement this remediation.

Amazon RDS DB Instance - Example Two

Amazon RDS DB instance configured with automatic minor version upgrades, enabled by means of the `AutoMinorVersionUpgrade` property. The example is shown in JSON and in YAML.

JSON example

```
{
  "DBInstance": {
    "Type": "AWS::RDS::DBInstance",
    "Properties": {
      "Engine": "postgres",
      "EngineVersion": 14.2,
      "DBInstanceClass": "db.m5.large",
      "StorageType": "gp2",
      "AllocatedStorage": 5,
      "MasterUsername": {
```
"Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}",

"MasterUserPassword": {
    "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}",

    "AutoMinorVersionUpgrade": true
},

"DeletionPolicy": "Delete"
}

YAML example

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    AutoMinorVersionUpgrade: true
    DeletionPolicy: Delete

CT.RDS.PR.5 rule specification

# ###############################################################
# Rule Specification  
# ###############################################################

# Rule Identifier:
# rds_instance_automatic_minor_version_upgrade_enabled_check

# Description:
# This control checks whether automatic minor version upgrades are enabled for an
# Amazon Relational Database Service (RDS) database instance.
# Reports on:
#   AWS::RDS::DBInstance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any RDS DB instance resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is not one of 'aurora', 'aurora-mysql', 'aurora-postgresql',
#          'mariadb', 'mysql',
#          'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb',
#          'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web',
#          'postgres'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql',
#          'mariadb', 'mysql',
#          'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb',
#          'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web',
#          'postgres'
#     And: 'AutoMinorVersionUpgrade' has been specified
#     And: 'AutoMinorVersionUpgrade' has been set to bool(false)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql',
#          'mariadb', 'mysql',
# 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb',
# 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web',
# 'postgres'
#       And: 'AutoMinorVersionUpgrade' has not been specified
#       Then: PASS

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an RDS DB instance resource
#       And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql',
#            'mariadb', 'mysql',
#            'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb',
#            'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web',
#            'postgres'
#       And: 'AutoMinorVersionUpgrade' has been specified
#       And: 'AutoMinorVersionUpgrade' has been set to bool(true)
#       Then: PASS

# Constants
#
let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let SUPPORTED_RDS_INSTANCE_ENGINES = [
  "aurora", "aurora-mysql", "aurora-postgresql", "mariadb", "mysql",
  "oracle-ee", "oracle-ee-cdb", "oracle-se2", "oracle-se2-cdb",
  "postgres", "sqlserver-ee", "sqlserver-se", "sqlserver-ex",
  "sqlserver-web"
]

# Assignments
#
let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

# Primary Rules
#
rule rds_instance_automatic_minor_version_upgrade_enabled_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %rds_db_instances not empty {
    check(%rds_db_instances.Properties)
    <<

Proactive controls
[CT.RDS.PR.5]: Require an Amazon RDS database instance to have minor version upgrades configured

[FIX]: Omit the 'AutoMinorVersionUpgrade' property or set it to 'true'.

rule rds_instance_automatic_minor_version_upgrade_enabled_check when
is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
<<
  [CT.RDS.PR.5]: Require an Amazon RDS database instance to have minor version upgrades configured
  [FIX]: Omit the 'AutoMinorVersionUpgrade' property or set it to 'true'.
>>
}

# Parameterized Rules
#
rule check(rds_db_instance) {
  %rds_db_instance [ filter_engine(this) ] {
    # Scenario: 4
    AutoMinorVersionUpgrade not exists or
    # Scenario: 3 and 5
    AutoMinorVersionUpgrade == true
  }
}

rule filter_engine(db_properties) {
  %db_properties {
    # Scenario: 2
    Engine exists
    Engine is_string
    Engine in %SUPPORTED_RDS_INSTANCE_ENGINES
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
CT.RDS.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Test RDS DB Instance secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "testUser"}'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: '"@/'

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
  DeletionPolicy: Delete
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  DBInstanceSecret:
    Type: AWS::SecretsManager::Secret
    Properties:
      Description: Test RDS DB Instance secret
      GenerateSecretString:
        SecretStringTemplate: '{"username": "testUser"}'
        GenerateStringKey: password
        PasswordLength: 22
        ExcludeCharacters: '"@/\'
  DBInstance:
    Type: AWS::RDS::DBInstance
    Properties:
      Engine: postgres
      EngineVersion: 14.2
      DBInstanceClass: db.m5.large
      StorageType: gp2
      AllocatedStorage: 5
      MasterUsername:
        Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
      MasterUserPassword:
        Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
      AutoMinorVersionUpgrade: false
    DeletionPolicy: Delete

[CT.RDS.PR.6] Require an Amazon RDS database cluster to have backtracking configured

This control checks whether an Amazon Relational Database Service (RDS) database (DB) cluster has backtracking enabled.

- **Control objective:** Improve resiliency
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBCluster
- **AWS CloudFormation guard rule:** [CT.RDS.PR.6 rule specification](#)
Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: 
  CT.RDS.PR.6 rule specification
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: 
  CT.RDS.PR.6 example templates

Explanation

Backups help you to recover more quickly from a security incident. Backups also strengthen the resilience of your systems. Aurora backtracking reduces the time required to recover a database for a specific point in time, and the recovery does not require a database restore.

Usage considerations

- This control applies only to Amazon RDS DB cluster engine types aurora and aurora-mysql, and to DB cluster engine modes provisioned and parallelquery
- This control does not apply to Amazon RDS DB clusters that support Aurora Serverless V2 database instances (For example, RDS DB clusters configured with a ServerlessV2ScalingConfiguration and Aurora Serverless V2 compatible EngineVersion.)

Remediation for rule failure

Set BacktrackWindow to a number between 1 and 259200.

The examples that follow show how to implement this remediation.

Amazon RDS DB Cluster - Example

Amazon RDS DB cluster configured with a backtrack window of 720 seconds (12 minutes). The example is shown in JSON and in YAML.

JSON example

```json
{
    "DBCluster": {
        "Type": "AWS::RDS::DBCluster",
```
"Properties": {
  "Engine": "aurora-mysql",
  "MasterUsername": {
    "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::username}}"
  },
  "MasterUserPassword": {
    "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::password}}"
  },
  "DBSubnetGroupName": {
    "Ref": "DBSubnetGroup"
  },
  "BacktrackWindow": 720
}

YAML example

DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora-mysql
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBClusterSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBClusterSecret}::password}}'
    DBSubnetGroupName: !Ref 'DBSubnetGroup'
    BacktrackWindow: 720

CT.RDS.PR.6 rule specification

# ####################################################################
##       Rule Specification       ##
# ####################################################################
#
# Rule Identifier:
#   aurora_cluster_backtracking_enabled_check
#
# Description:
# This control checks whether an Amazon Relational Database Service (RDS) database (DB) cluster has backtracking enabled.
#
# Reports on:
#   AWS::RDS::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any RDS DB cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB cluster resource
#     And: 'Engine' provided is not one of 'aurora' or 'aurora-mysql'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB cluster resource
#     And: 'Engine' provided is one of 'aurora' or 'aurora-mysql'
#     And: 'EngineMode' provided is not one of 'provisioned' or 'parallelquery'
#     Then: SKIP
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB cluster resource
#     And: 'ServerlessV2ScalingConfiguration' is provided
#     And: 'Engine' provided is 'aurora-mysql'
#     And: 'EngineVersion' provided is '8.0.mysql_aurora.3.02.0' or higher
#     Then: SKIP
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB cluster resource
#     And: 'Engine' provided is one of 'aurora' or 'aurora-mysql'
# And: 'EngineMode' is not provided or 'EngineMode' provided is one of 'provisioned' or 'parallelquery'
# And: 'BacktrackWindow' has not been provided
# Then: FAIL

Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB cluster resource
# And: 'Engine' provided is one of 'aurora' or 'aurora-mysql'
# And: 'EngineMode' is not provided or 'EngineMode' provided is one of 'provisioned' or 'parallelquery'
# And: 'BacktrackWindow' has been provided and is set to 0
# Then: FAIL

Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB cluster resource
# And: 'Engine' provided is one of 'aurora' or 'aurora-mysql'
# And: 'EngineMode' is not provided or 'EngineMode' provided is one of 'provisioned' or 'parallelquery'
# And: 'BacktrackWindow' has been provided and is set to a value > 0
# Then: PASS

# Constants
#
let RDS_DB_CLUSTER_TYPE = "AWS::RDS::DBCluster"
let SUPPORTED_DB_CLUSTER_ENGINES = ["aurora", "aurora-mysql"]
let SUPPORTED_DB_CLUSTER_ENGINE_MODES = ["provisioned", "parallelquery"]
let AURORA_SERVERLESS_V2_SUPPORTED_ENGINE = ["aurora-mysql"]
let AURORA_V3_SERVERLESS_V2_SUPPORTED_PATTERN = /^8\.[0-9]\.[0-9]\.[0-93]\.[0-91]/
let AURORA_V3_SERVERLESS_V2_NOT_SUPPORTED_PATTERN = /[^8\.[0-9]\.[0-9]\.[0-93]\.[0-91]/
let INPUT_DOCUMENT = this

# Assignments
#
let db_clusters = Resources.*[ Type == %RDS_DB_CLUSTER_TYPE ]

# Primary Rules
#
rule aurora_cluster_backtracking_enabled_check when is_cfn_template(%INPUT_DOCUMENT) %db_clusters not empty {
check(%db_clusters.Properties) <<

[CT.RDS.PR.6]: Require an Amazon RDS database cluster to have backtracking configured

[FIX]: Set 'BacktrackWindow' to a number between '1' and '259200'.

>>

rule aurora_cluster_backtracking_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_DB_CLUSTER_TYPE.resourceProperties) <<

  [CT.RDS.PR.6]: Require an Amazon RDS database cluster to have backtracking configured

  [FIX]: Set 'BacktrackWindow' to a number between '1' and '259200'.

  >>
}

rule check(db_cluster) {
  %db_cluster [
    filter_engine_enginemode_and_serverless_v2(this)
  ] {
    # Scenario 5
    BacktrackWindow exists
    # Scenario 6 and 7
    BacktrackWindow > 0
  }
}

rule filter_engine_enginemode_and_serverless_v2(db_cluster) {
  # Scenario 2 and 3
  %db_cluster {
    Engine exists
    Engine in %SUPPORTED_DB_CLUSTER_ENGINES
    EngineMode not exists or
    EngineMode in %SUPPORTED_DB_CLUSTER_ENGINE_MODES
  }
  #Scenario 4
  %db_cluster [
    ServerlessV2ScalingConfiguration exists
    Engine in %AURORA_SERVERLESS_V2_SUPPORTED_ENGINE
  ] {
    EngineVersion in %AURORA_V3_SERVERLESS_V2_NOT_SUPPORTED_PATTERN or
    EngineVersion not in %AURORA_V3_SERVERLESS_V2_SUPPORTED_PATTERN
CT.RDS.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsHostnames: true
    EnableDnsSupport: true
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/25
    AvailabilityZone:
      Fn::Select:
        - 0
```
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsHostnames: true
    EnableDnsSupport: true

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/25
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.0.128/25
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
    VpcId:
      Ref: VPC

DBSubnetGroup:
  Type: AWS::RDS::DBSubnetGroup
  Properties:
    DBSubnetGroupDescription: Example DB subnet group
    SubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo

DBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasteruser"}'
      GenerateStringKey: password
      PasswordLength: 32

Proactive controls
**AWS Control Tower**

**User Guide**

**ExcludeCharacters: "/@"'"\"**

**DBCluster:**
- **Type:** AWS::RDS::DBCluster
- **Properties:**
  - **Engine:** aurora-mysql
  - **EngineMode:** provisioned
  - **MasterUsername:**
    Fn::Sub: '{{resolve:secretsmanager:${DBClusterSecret}::username}}'
  - **MasterUserPassword:**
    Fn::Sub: '{{resolve:secretsmanager:${DBClusterSecret}::password}}'
  - **DBSubnetGroupName:**
    Ref: DBSubnetGroup

---

**[CT.RDS.PR.7] Require Amazon RDS database instances to have IAM authentication configured**

This control checks whether an Amazon RDS database (DB) instance has AWS Identity and Access Management (IAM) database authentication activated.

- **Control objective:** Use strong authentication
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.7 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.7 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.7 example templates](#)

**Explanation**

IAM database authentication allows authentication to database instances with an authentication token instead of a password. Network traffic to and from the database is encrypted with SSL.
### Usage considerations

- This control applies only to Amazon RDS DB engine types mariadb, mysql and postgres.

### Remediation for rule failure

Set EnableIAMDatabaseAuthentication to true.

The examples that follow show how to implement this remediation.

#### Amazon RDS DB Instance - Example

Amazon RDS DB instance configured with IAM database authentication. The example is shown in JSON and in YAML.

#### JSON example

```json
{
   "DBInstance": {
      "Type": "AWS::RDS::DBInstance",
      "Properties": {
         "Engine": "postgres",
         "EngineVersion": 14.2,
         "DBInstanceClass": "db.m5.large",
         "StorageType": "gp2",
         "AllocatedStorage": 5,
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
         },
         "EnableIAMDatabaseAuthentication": true
      },
      "DeletionPolicy": "Delete"
   }
}
```
**YAML example**

```
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    EnableIAMDatabaseAuthentication: true
    DeletionPolicy: Delete
```

**CT.RDS.PR.7 rule specification**

```
# ####################################################################
##         Rule Specification       ##
# ####################################################################
#
# Rule Identifier:
#   rds_instance_iam_authentication_enabled_check
# Description:
#   This control checks whether an Amazon RDS database (DB) instance has AWS Identity
#   and Access Management (IAM) database authentication activated.
#
# Reports on:
#   AWS::RDS::DBInstance
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any RDS DB instance resources
#      Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is not in-scope database engines - 'mariadb', 'mysql', 'postgres'
#      Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is in-scope database engines - 'mariadb', 'mysql', 'postgres'
#     And: 'EnableIAMDatabaseAuthentication' has not been specified
#      Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is in-scope database engines - 'mariadb', 'mysql', 'postgres'
#     And: 'EnableIAMDatabaseAuthentication' has been specified
#     And: 'EnableIAMDatabaseAuthentication' has been set to bool(false)
#      Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is in-scope database engines - 'mariadb', 'mysql', 'postgres'
#     And: 'EnableIAMDatabaseAuthentication' has been specified
#     And: 'EnableIAMDatabaseAuthentication' has been set to bool(true)
#      Then: PASS

# Constants
#
let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let SUPPORTED_RDS_INSTANCE_ENGINES = ["mariadb", "mysql", "postgres"]

# # Assignments
#
let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

# Primary Rules

rule rds_instance_iam_authentication_enabled_check when is_cfn_template(%INPUT_DOCUMENT) %rds_db_instances not empty {
  check(%rds_db_instances.Properties)
  <<
  [CT.RDS.PR.7]: Require Amazon RDS database instances to have AWS IAM authentication configured
  [FIX]: Set 'EnableIAMDatabaseAuthentication' to 'true'.
  >>
}

rule rds_instance_iam_authentication_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
  check(%INPUTDOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
  <<
  [CT.RDS.PR.7]: Require Amazon RDS database instances to have AWS IAM authentication configured
  [FIX]: Set 'EnableIAMDatabaseAuthentication' to 'true'.
  >>
}

# Parameterized Rules

rule check(rds_db_instance) {
  %rds_db_instance [filter_engine(this)] {
    #Scenario: 3
    EnableIAMDatabaseAuthentication exists
    #Scenario: 4 and 5
    EnableIAMDatabaseAuthentication == true
  }
}

rule filter_engine(db_properties) {
  %db_properties {
    #Scenario: 2
    Engine exists
    Engine is_string
    Engine in %SUPPORTED_RDS_INSTANCE_ENGINES
  }
}
CT.RDS.PR.7 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
  Description: Test RDS DB Instance secret
  GenerateSecretString:
  SecretStringTemplate: '{"username": "testUser"}'
  GenerateStringKey: password
  PasswordLength: 22
  ExcludeCharacters: '@/\'
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
  Engine: postgres
  EngineVersion: 14.2
  DBInstanceClass: db.m5.large
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Test RDS DB Instance secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "testUser"}'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: '"@/\'
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername:
      Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::username}'
    MasterUserPassword:
      Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::password}'
    EnableIAMDatabaseAuthentication: false
    DeletionPolicy: Delete
[CT.RDS.PR.8] Require an Amazon RDS database instance to have automatic backups configured

This control checks whether Amazon RDS database (DB) instances have automated backups enabled, and verifies that the backup retention period is greater than or equal to seven (7) days.

- **Control objective**: Improve resiliency
- **Implementation**: AWS CloudFormation Guard Rule
- **Control behavior**: Proactive
- **Resource types**: AWS::RDS::DBInstance
- **AWS CloudFormation guard rule**: [CT.RDS.PR.8 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.8 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.8 example templates](#)

Explanation

Backups help you recover more quickly from a security incident, and they strengthen the resilience of your systems. Amazon RDS provides an easy way to configure daily, full-instance volume snapshots.

### Usage considerations

- This control applies only to Amazon RDS DB engine types mariadb, mysql, oracle-ee, oracle-ee-cdb, oracle-se2, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex and sqlserver-web.

Remediation for rule failure

Set BackupRetentionPeriod to an integer value between 7 and 35 days (inclusive).

The examples that follow show how to implement this remediation.
Amazon RDS DB Instance - Example

Amazon RDS DB instance configured with automated backups configured and a backup retention period of 14 days. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "DBInstance": {
        "Type": "AWS::RDS::DBInstance",
        "Properties": {
            "Engine": "postgres",
            "EngineVersion": 14.2,
            "DBInstanceClass": "db.m5.large",
            "StorageType": "gp2",
            "AllocatedStorage": 5,
            "MasterUsername": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
            },
            "MasterUserPassword": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
            },
            "BackupRetentionPeriod": 14
        }
    }
}
```

**YAML example**

```yaml
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
```

Proactive controls
CT.RDS.PR.8 rule specification

# #################################################################
##       Rule Specification       ##
####################################################################
#
# Rule Identifier:
#   rds_instance_backup_enabled_check
#
# Description:
#   This control checks whether Amazon RDS database (DB) instances have automated
#   backups enabled, and verifies that the backup retention period is greater than or
#   equal to seven (7) days.
#
# Reports on:
#   AWS::RDS::DBInstance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any RDS DB instance resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is not one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb',
#          'oracle-se2',
#     Then: 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-
ex', 'sqlserver-web'
Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB instance resource
And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
And: 'BackupRetentionPeriod' has been specified
And: 'BackupRetentionPeriod' has been set to 0 (backup disabled)
Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB instance resource
And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
And: 'BackupRetentionPeriod' has not been specified
Then: FAIL
Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB instance resource
And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
And: 'BackupRetentionPeriod' has been specified
And: 'BackupRetentionPeriod' has been set to < 7
Then: FAIL
Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB instance resource
And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
And: 'BackupRetentionPeriod' has been specified
And: 'BackupRetentionPeriod' has been set to an integer >= 7
Then: PASS
let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let SUPPORTED_RDS_INSTANCE_ENGINES = [
  "mariadb", "mysql", "oracle-ee", "oracle-ee-cdb", "oracle-se2",
  "oracle-se2-cdb", "postgres", "sqlserver-ee", "sqlserver-se",
  "sqlserver-ex", "sqlserver-web"
]

let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

rule rds_instance_backup_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
  %rds_db_instances not empty {
    check(%rds_db_instances.Properties)
    %rds_db_instances not empty {
      [CT.RDS.PR.8]: Require an Amazon RDS database instance to have automatic backups configured
      [FIX]: Set 'BackupRetentionPeriod' to an integer value between 7 and 35 days (inclusive).
    }
  }

rule rds_instance_backup_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
  [CT.RDS.PR.8]: Require an Amazon RDS database instance to have automatic backups configured
  [FIX]: Set 'BackupRetentionPeriod' to an integer value between 7 and 35 days (inclusive).
}

# Parameterized Rules
# AWS Control Tower User Guide

## CT.RDS.PR.8 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.
Resources:

DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
Properties:
  Description: Test RDS DB Instance secret
  GenerateSecretString:
    SecretStringTemplate: '{"username": "testUser"}'
    GenerateStringKey: password
    PasswordLength: 22
    ExcludeCharacters: '@/\'

DBInstance:
  Type: AWS::RDS::DBInstance
Properties:
  Engine: postgres
  EngineVersion: 14.2
  DBInstanceClass: db.m5.large
  StorageType: gp2
  AllocatedStorage: 5
  MasterUsername:
    Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::username}''
  MasterUserPassword:
    Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::password}''
  BackupRetentionPeriod: 14
  DeletionPolicy: Delete

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Properties:
- Engine: postgres
- EngineVersion: 14.2
- DBInstanceClass: db.m5.large
- StorageType: gp2
- AllocatedStorage: 5
- MasterUsername:
  - Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
- MasterUserPassword:
  - Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
- BackupRetentionPeriod: 4
- DeletionPolicy: Delete

[CT.RDS.PR.9] Require an Amazon RDS database cluster to copy tags to snapshots

This control checks whether an Amazon RDS database (DB) cluster is configured to copy all tags to snapshots created.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBCluster
- **AWS CloudFormation guard rule:** [CT.RDS.PR.9 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.9 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.9 example templates](#)

Explanation

Identification and inventory of your infrastructure assets is a crucial aspect of governance and security. With visibility into all your Amazon RDS DB clusters, you can assess their security posture and take action on potential areas of weakness. We recommend that you tag snapshots in the same
way as their parent RDS database clusters. Activating this setting ensures that snapshots inherit the tags of their parent database clusters.

**Usage considerations**

- This control applies only to Amazon RDS DB cluster engine types aurora, aurora-mysql, and aurora-postgresql.

**Remediation for rule failure**

Set `CopyTagsToSnapshot` to `true`.

The examples that follow show how to implement this remediation.

**Amazon RDS DB Cluster - Example**

Amazon RDS DB cluster configured to copy tags to snapshots. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "DBCluster": {
        "Type": "AWS::RDS::DBCluster",
        "Properties": {
            "Engine": "aurora-mysql",
            "MasterUsername": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::username}}"
            },
            "MasterUserPassword": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::password}}"
            },
            "DBSubnetGroupName": {
                "Ref": "DBSubnetGroup"
            },
            "CopyTagsToSnapshot": true
        }
    }
}
```
YAML example

DBCluster:
Type: AWS::RDS::DBCluster
Properties:
  Engine: aurora-mysql
  MasterUsername: !Sub '{{resolve:secretsmanager:${DBClusterSecret}::username}}'
  MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBClusterSecret}::password}}'
  DBSubnetGroupName: !Ref 'DBSubnetGroup'
  CopyTagsToSnapshot: true

CT.RDS.PR.9 rule specification

# ################################################################################################
##       Rule Specification        ##
# ###############################################################################
# # Rule Identifier: #
#  rds_cluster_copy_tags_to_snapshots_enabled_check #
# # Description: #
#  This control checks whether an Amazon RDS DB cluster is configured to copy all tags to snapshots created. #
# # Reports on: #
#  AWS::RDS::DBCluster #
# # Evaluates: #
#  AWS CloudFormation, AWS CloudFormation hook #
# # Rule Parameters: #
#  None #
# # Scenarios: #
#  Scenario: 1 #
#  Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document #
#  And: The input document does not contain any RDS DB cluster resources #
#  Then: SKIP
# Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'Engine' provided is not one of 'aurora' or 'aurora-mysql' or 'aurora-postgresql'
Then: SKIP

# Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'Engine' provided is one of 'aurora' or 'aurora-mysql' or 'aurora-postgresql'
And: 'CopyTagsToSnapshot' has not been provided
Then: FAIL

# Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'Engine' provided is one of 'aurora' or 'aurora-mysql' or 'aurora-postgresql'
And: 'CopyTagsToSnapshot' has been provided
And: 'CopyTagsToSnapshot' has been set to a value other than bool(true)
Then: FAIL

# Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'Engine' provided is one of 'aurora' or 'aurora-mysql' or 'aurora-postgresql'
And: 'CopyTagsToSnapshot' has been provided
And: 'CopyTagsToSnapshot' has been set to bool(true)
Then: PASS

# Constants

let RDS_DB_CLUSTER_TYPE = "AWS::RDS::DBCluster"
let SUPPORTED_DB_CLUSTER_ENGINES = ["aurora", "aurora-mysql","aurora-postgresql"]
let INPUT_DOCUMENT = this
let db_clusters = Resources.*[ Type == %RDS_DB_CLUSTERS_TYPE ]

# Primary Rules
#
rule rds_cluster_copy_tags_to_snapshots_enabled_check when
   is_cfn_template(%INPUT_DOCUMENT) %db_clusters not empty {
   check(%db_clusters.Properties)
   <<
   [CT.RDS.PR.9]: Require an Amazon RDS database cluster to copy tags to snapshots
   [FIX]: Set 'CopyTagsToSnapshot' to 'true'.
   >>
}

rule rds_cluster_copy_tags_to_snapshots_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_CLUSTERS_TYPE) {
   check(%INPUT_DOCUMENT.%RDS_DB_CLUSTERS_TYPE.resourceProperties)
   <<
   [CT.RDS.PR.9]: Require an Amazon RDS database cluster to copy tags to snapshots
   [FIX]: Set 'CopyTagsToSnapshot' to 'true'.
   >>
}

rule check(db_cluster) {
   %db_cluster [
      # Scenario 2
      filter_engine(this)
   ] {
      # Scenario 3
      CopyTagsToSnapshot exists
      # Scenario 4 and 5
      CopyTagsToSnapshot == true
   }
}

rule filter_engine(cluster_properties) {
   %cluster_properties {
      Engine exists
      Engine in %SUPPORTED_DB_CLUSTER_ENGINES
   }
}

#
# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.RDS.PR.9 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsHostnames: true
  EnableDnsSupport: true
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/25
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
CidrBlock: 10.0.0.128/25
AvailabilityZone:
  Fn::Select:
  - 1
  - Fn::GetAZs: ''
VpcId:
  Ref: VPC
DBSubnetGroup:
  Type: AWS::RDS::DBSubnetGroup
  Properties:
    DBSubnetGroupDescription: DB subnet group for DBCluster
    SubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo
DBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasteruser"}'
      GenerateStringKey: password
      PasswordLength: 32
      ExcludeCharacters: '/@"\'
DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora-mysql
    MasterUsername:
      Fn::Sub: '{${resolve:secretsmanager:${DBClusterSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{${resolve:secretsmanager:${DBClusterSecret}::password}}'
    DBSubnetGroupName:
      Ref: DBSubnetGroup
    CopyTagsToSnapshot: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  VPC:
Type: AWS::EC2::VPC
Properties:
  CidrBlock: 10.0.0.0/16
  EnableDnsHostnames: true
  EnableDnsSupport: true

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/25
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.0.128/25
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
    VpcId:
      Ref: VPC

DBSubnetGroup:
  Type: AWS::RDS::DBSubnetGroup
  Properties:
    DBSubnetGroupDescription: DB subnet group for DBCluster
    SubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo

DBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasteruser"}'
      GenerateStringKey: password
      PasswordLength: 32
      ExcludeCharacters: "/@\"

DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
[CT.RDS.PR.10] Require an Amazon RDS database instance to copy tags to snapshots

This control checks whether Amazon RDS database (DB) instances are configured to copy all tags to snapshots created.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.10 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.10 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.10 example templates](#)

Explanation

Identification and inventory of your IT assets is a crucial aspect of governance and security. With visibility of all your RDS DB instances, you can assess their security posture and take action on potential areas of weakness. Snapshots should be tagged to match their parent RDS database instances. Enabling this setting ensures that snapshots inherit the tags from their parent database instances.
Usage considerations

- This control applies only to Amazon RDS DB engine types mariadb, mysql, oracle-ee, oracle-ee-cdb, oracle-se2, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex and sqlserver-web.

Remediation for rule failure

Set `CopyTagsToSnapshot` to `true`.

The examples that follow show how to implement this remediation.

**Amazon RDS DB Instance - Example**

Amazon RDS DB instance configured to copy all tags to snapshots created. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "DBInstance": {
      "Type": "AWS::RDS::DBInstance",
      "Properties": {
         "Engine": "postgres",
         "EngineVersion": 14.2,
         "DBInstanceClass": "db.m5.large",
         "StorageType": "gp2",
         "AllocatedStorage": 5,
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}",
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}",
         },
         "CopyTagsToSnapshot": true
      },
      "DeletionPolicy": "Delete"
   }
}
```
YAML example

```yaml
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{[resolve:secretsmanager:${DBInstanceSecret}::username]}'
    MasterUserPassword: !Sub '{[resolve:secretsmanager:${DBInstanceSecret}::password]}'
    CopyTagsToSnapshot: true
    DeletionPolicy: Delete
```

CT.RDS.PR.10 rule specification

```
# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   rds_instance_copy_tags_to_snapshots_enabled_check
#
# Description:
#   This control checks whether Amazon RDS database (DB) instances are configured to copy all tags to snapshots created.
#
# Reports on:
#   AWS::RDS::DBInstance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
```
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any RDS DB instance resources
Then: SKIP

Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB instance resource
And: 'Engine' is not one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
    'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
Then: SKIP

Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB instance resource
And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
    'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
And: 'CopyTagsToSnapshot' has not been specified
Then: FAIL

Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB instance resource
And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
    'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
And: 'CopyTagsToSnapshot' has been specified
And: 'CopyTagsToSnapshot' has been set to bool(false)
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB instance resource
And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
    'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
And: 'CopyTagsToSnapshot' has been specified
And: 'CopyTagsToSnapshot' has been set to bool(true)
# Constants
#
# let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let SUPPORTED_RDS_INSTANCE_ENGINES = [
"mariadb", "mysql", "oracle-ee", "oracle-ee-cdb", "oracle-se2",
"oracle-se2-cdb", "postgres", "sqlserver-ee", "sqlserver-se",
"sqlserver-ex", "sqlserver-web"
]

# Assignments
#
# let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

# Primary Rules
#
rule rds_instance_copy_tags_to_snapshots_enabled_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %rds_db_instances not empty {
      check(%rds_db_instances.Properties)
      <<
      [CT.RDS.PR.10]: Require an Amazon RDS database instance to copy tags to
      snapshots
      [FIX]: Set 'CopyTagsToSnapshot' to 'true'.
      >>
  }
rule rds_instance_copy_tags_to_snapshots_enabled_check when
  is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
      check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
      <<
      [CT.RDS.PR.10]: Require an Amazon RDS database instance to copy tags to
      snapshots
      [FIX]: Set 'CopyTagsToSnapshot' to 'true'.
      >>
  }

# Parameterized Rules
CT.RDS.PR.10 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Properties:
   Engine: postgres
   EngineVersion: 14.2
   DBInstanceClass: db.m5.large
   StorageType: gp2
   AllocatedStorage: 5
   MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
   MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
   CopyTagsToSnapshot: false
   DeletionPolicy: Delete

[CT.RDS.PR.11] Require an Amazon RDS database instance to have a VPC configuration

This control checks whether an Amazon RDS database (DB) instance is deployed in a VPC (that is, with an EC2-VPC instance).

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.11 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.11 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.11 example templates](#)

Explanation

Amazon Virtual Private Cloud (Amazon VPC) provides a number of network controls to create secure access to RDS resources. These controls include VPC endpoints, network ACLs, and security groups. To take advantage of these controls, create your Amazon RDS instances as EC2 VPC instances.
**Usage considerations**

- This control applies only to Amazon RDS DB engine types mariadb, mysql, oracle-ee, oracle-ee-cdb, oracle-se2, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex and sqlserver-web.

**Remediation for rule failure**

Set a DBSubnetGroupName.

The examples that follow show how to implement this remediation.

**Amazon RDS DB Instance - Example**

Amazon RDS DB instance configured to deploy in an Amazon VPC with an RDS DB subnet group. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "DBInstance": {
        "Type": "AWS::RDS::DBInstance",
        "Properties": {
            "Engine": "postgres",
            "EngineVersion": 14.2,
            "DBInstanceClass": "db.m5.large",
            "StorageType": "gp2",
            "AllocatedStorage": 5,
            "MasterUsername": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
            },
            "MasterUserPassword": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
            },
            "DBSubnetGroupName": {
                "Ref": "DBSubnetGroup"
            }
        },
        "DeletionPolicy": "Delete"
    }
}
```
YAML example

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    DBSubnetGroupName: !Ref 'DBSubnetGroup'
  DeletionPolicy: Delete

CT.RDS.PR.11 rule specification

# #####################################################################
##       Rule Specification        ##
# #####################################################################
#
# Rule Identifier:
#   rds_instance_deployed_in_vpc_check
#
# Description:
#   This control checks whether an Amazon RDS database (DB) instance is deployed in a VPC (that is, an EC2 VPC instance).
#
# Reports on:
#   AWS::RDS::DBInstance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any RDS DB instance resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is not one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
# 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
# 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# And: 'DBSubnetGroupName' has not been specified
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
# 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# And: 'DBSubnetGroupName' has been specified but is an empty string or invalid local reference to a DB Subnet Group
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
# Constants

let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"

let SUPPORTED_RDS_INSTANCE_ENGINES = [
]

let INPUT_DOCUMENT = this

# Assignments

let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

# Primary Rules

rule rds_instance_deployed_in_vpc_check when is_cfn_template(%INPUT_DOCUMENT) {
  check(%rds_db_instances.Properties) %rds_db_instances not empty {
    <<
    [CT.RDS.PR.11]: Require an Amazon RDS database instance to have a VPC configuration
    [FIX]: Set a 'DBSubnetGroupName'.
    >>
  }
}

rule rds_instance_deployed_in_vpc_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties) <<
  [CT.RDS.PR.11]: Require an Amazon RDS database instance to have a VPC configuration
  [FIX]: Set a 'DBSubnetGroupName'.
  >>
}
# Parameterized Rules

rule check(rds_db_instance) {
    %rds_db_instance [filter_engine(this)] {
        # Scenario: 3
        DBSubnetGroupName exists

        # Scenario: 4 and 5
        check_db_subnet_group(DBSubnetGroupName)
    }
}

rule filter_engine(db_properties) {
    %db_properties {
        # Scenario: 2
        Engine exists
        Engine is_string
        Engine in %SUPPORTED_RDS_INSTANCE_ENGINES
    }
}

rule check_db_subnet_group(db_subnet_group) {
    %db_subnet_group {
        check_is_string_and_not_empty(this) or
        check_local_references(%INPUT_DOCUMENT, this, "AWS::RDS::DBSubnetGroup")
    }
}

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /\A\s*\z/
  }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
  %reference_properties {
    'Fn::GetAtt' {
      query_for_resource(%doc, this[0], %referenced_resource_type)
      <<Local Stack reference was invalid>>
    } or Ref {
      query_for_resource(%doc, this, %referenced_resource_type)
      <<Local Stack reference was invalid>>
    }
  }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
  let referenced_resource = %doc.Resources[ keys == %resource_key ]
  %referenced_resource not empty
  %referenced_resource {
    Type == %referenced_resource_type
  }
}

**CT.RDS.PR.11 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:**

**VPC:**
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsHostnames: true
    EnableDnsSupport: true
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.96.0/19
    AvailabilityZone:
      Fn::Select:
        - '0'
        - Fn::GetAZs: {Ref: 'AWS::Region'}
    VpcId:
      Ref: VPC

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.128.0/19
    AvailabilityZone:
      Fn::Select:
        - '1'
        - Fn::GetAZs: {Ref: 'AWS::Region'}
    VpcId:
      Ref: VPC

DBSubnetGroup:
  Type: AWS::RDS::DBSubnetGroup
  Properties:
    DBSubnetGroupDescription: Test DB subnet group
    SubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo

DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Test RDS DB Instance secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "testUser"}'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: '@/\'

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  DBInstanceSecret:
    Type: AWS::SecretsManager::Secret
    Properties:
      Description: Test RDS DB Instance secret
      GenerateSecretString:
        SecretStringTemplate: '{"username": "testUser"}"
        GenerateStringKey: password
        PasswordLength: 22
        ExcludeCharacters: '@/'  
  DBInstance:
    Type: AWS::RDS::DBInstance
    Properties:
      Engine: postgres
      EngineVersion: 14.2
      DBInstanceClass: db.m5.large
      StorageType: gp2
      AllocatedStorage: 5
      MasterUsername:
        Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::username}'
      MasterUserPassword:
        Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::password}'
      DeletionPolicy: Delete
[CT.RDS.PR.12] Require an Amazon RDS event subscription to have critical cluster events configured

This control checks whether your Amazon RDS event subscriptions for RDS clusters are configured to notify on event categories of maintenance and failure.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::EventSubscription
- **AWS CloudFormation guard rule:** [CT.RDS.PR.12 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.12 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.12 example templates](#)

**Explanation**

Amazon RDS event notifications uses Amazon SNS to make you aware of changes in the availability or configuration of your RDS resources. These notifications allow for rapid response.

**Usage considerations**

- This control applies only to Amazon RDS event subscriptions for RDS clusters (SourceType of db-cluster).

**Remediation for rule failure**

When SourceType is set to db-cluster, set Enabled to true and ensure that EventCategories contains both maintenance and failure values.

The examples that follow show how to implement this remediation.
Amazon RDS Event Subscription - Example One

Amazon RDS event subscription for RDS clusters configured to notify on all event categories. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "RDSEventSubscription": {
      "Type": "AWS::RDS::EventSubscription",
      "Properties": {
         "SnsTopicArn": {
            "Ref": "SnsTopic"
         },
         "SourceType": "db-cluster",
         "Enabled": true
      }
   }
}
```

**YAML example**

```yaml
RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
    SnsTopicArn: !Ref 'SnsTopic'
    SourceType: db-cluster
    Enabled: true
```

The examples that follow show how to implement this remediation.

Amazon RDS Event Subscription - Example Two

Amazon RDS event subscription for RDS clusters configured to notify on maintenance and failure event categories. The example is shown in JSON and in YAML.

**JSON example**
YAML example

RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
    SnsTopicArn: !Ref 'SnsTopic'
    EventCategories:
      - maintenance
      - failure
    SourceType: db-cluster
    Enabled: true

CT.RDS.PR.12 rule specification

# ###################################################################
##       Rule Specification         ##
# ###################################################################
#
# Rule Identifier:

Proactive controls

1925
# rds_cluster_event_notifications_configured_check
#
# Description:
# Checks whether an Amazon RDS event subscriptions for RDS clusters is configured to
# notify on event categories of "maintenance" and "failure".
#
# Reports on:
# AWS::RDS::EventSubscription
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document does not contain any Amazon RDS event subscription
# resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an Amazon RDS event subscription resource
# And: 'SourceType' is provided and is not 'db-cluster'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an Amazon RDS event subscription resource
# And: 'SourceType' is 'db-cluster'
# And: 'Enabled' is not provided or set to bool(false)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an Amazon RDS event subscription resource
# And: 'SourceType' is provided and is 'db-cluster'
# And: 'Enabled' is provided and set to bool(true)
# And: 'EventCategories' does not contain both 'maintenance' and 'failure'
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon RDS event subscription resource
# And: 'SourceType' is provided and is 'db-cluster'
# And: 'Enabled' is provided and set to bool(true)
# And: 'EventCategories' does not exist or is an empty list
# Then: PASS

# Scenario: 6
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon RDS event subscription resource
# And: 'SourceType' is provided and is 'db-cluster'
# And: 'Enabled' is provided and set to bool(true)
# And: 'EventCategories' contains both 'maintenance' and 'failure'
# Then: PASS

# Constants
#
let RDS_EVENTSUBSCRIPTION_TYPE = "AWS::RDS::EventSubscription"
let INPUT_DOCUMENT = this
let EVENT_CATEGORIES = ["maintenance","failure"]
let EVENT_SOURCE_TYPE = "db-cluster"

# Assignments
#
let rds_event_subscriptions = Resources.*[ Type == %RDS_EVENTSUBSCRIPTION_TYPE ]

# Primary Rules
#
rule rds_cluster_event_notifications_configured_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %rds_event_subscriptions not empty { 
    check(%rds_event_subscriptions.Properties)
    <<
      [CT.RDS.PR.12]: Require an Amazon RDS event subscription to have critical cluster events configured
      [FIX]: When 'SourceType' is set to 'db-cluster', set 'Enabled' to true and ensure that 'EventCategories' contains both 'maintenance' and 'failure' values.
    >>
  }

Proactive controls
rule rds_cluster_event_notifications_configured_check when is_cfn_hook(%INPUT_DOCUMENT, \%RDS_EVENTSUBSCRIPTION_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_EVENTSUBSCRIPTION_TYPE.resourceProperties)
    <<
    [CT.RDS.PR.12]: Require an Amazon RDS event subscription to have critical
    cluster events configured
    [FIX]: When 'SourceType' is set to 'db-cluster', set 'Enabled' to true and
    ensure that 'EventCategories' contains both 'maintenance' and 'failure' values.
    >>
}

# # Parameterized Rules
# rule check(resource) {
#     %resource [ SourceType == %EVENT_SOURCE_TYPE ] {
#         Enabled exists
#         # Scenario 4
#         Enabled == true
#         # Scenario 5
#         EventCategories not exists or
#         # Scenario 6
#         check_event_categories_for_required_events(EventCategories)
#     }
# }

rule check_event_categories_for_required_events(event_categories) {
    %event_categories {
        this exists
        this is_list
        this empty or
        EVENT_CATEGORIES.* in this
    }
}

# # Utility Rules
# rule is_cfn_template(doc) {
#     %doc {
#         AWSTemplateFormatVersion exists or
#         Resources exists
#     }
}
CT.RDS.PR.12 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  SNSTopic:
    Type: AWS::SNS::Topic
    Properties: {}
  RDSEventSubscription:
    Type: AWS::RDS::EventSubscription
    Properties:
      SnsTopicArn:
        Ref: SNSTopic
      SourceType: db-cluster
      Enabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  SNSTopic:
    Type: AWS::SNS::Topic
    Properties: {}
  RDSEventSubscription:
    Type: AWS::RDS::EventSubscription
    Properties:
      SnsTopicArn:
[CT.RDS.PR.13] Require any Amazon RDS instance to have deletion protection configured

This control checks whether an Amazon Relational Database Service (Amazon RDS) instance has deletion protection activated.

• **Control objective:** Improve availability
• **Implementation:** AWS CloudFormation Guard Rule
• **Control behavior:** Proactive
• **Resource types:** AWS::RDS::DBInstance
• **AWS CloudFormation guard rule:** [CT.RDS.PR.13 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.13 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.13 example templates](#)

Explanation

When active, instance deletion protection provides an additional layer of protection against accidental database deletion, or deletion by an unauthorized entity.

While deletion protection is active, an RDS DB instance cannot be deleted. Before a deletion request can succeed, deletion protection must be turned off.
**Usage considerations**

- This control applies only to Amazon RDS DB engine types mariadb, mysql,oracle-ee, oracle-ee-cdb, oracle-se2, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex and sqlserver-web.

**Remediation for rule failure**

Set `DeletionProtection` to true.

The examples that follow show how to implement this remediation.

**Amazon RDS DB instance - Example**

Amazon RDS DB instance configured with deletion protection active. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "DBInstance": {
      "Type": "AWS::RDS::DBInstance",
      "Properties": {
         "Engine": "postgres",
         "EngineVersion": 5.7,
         "DBInstanceClass": "db.m5.large",
         "StorageType": "gp2",
         "AllocatedStorage": 5,
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
         },
         "StorageEncrypted": true,
         "DeletionProtection": true
      },
      "DeletionPolicy": "Delete"
   }
}
```
YAML example

```
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 5.7
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    StorageEncrypted: true
    DeletionProtection: true
    DeletionPolicy: Delete
```

CT.RDS.PR.13 rule specification

```
# ####################################################################
###       Rule Specification       ###
####################################################################
#
# Rule Identifier:  
#   rds_instance_deletion_protection_enabled_check  
# 
# Description:  
#   This control checks whether an Amazon Relational Database Service (Amazon RDS)  
#   instance has deletion protection activated.  
# 
# Reports on:  
#   AWS::RDS::DBInstance  
# 
# Evaluates:  
#   AWS CloudFormation, AWS CloudFormation hook  
# 
# Rule Parameters:  
#   None
```
# Scenarios:

## Scenario: 1
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
- And: The input document does not contain any RDS DB instance resources
- Then: SKIP

## Scenario: 2
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
- And: The input document contains an RDS DB instance resource
- And: 'Engine' is not one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
- Then: SKIP

## Scenario: 3
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
- And: The input document contains an RDS DB instance resource
- And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
- And: 'DeletionProtection' has not been specified
- Then: FAIL

## Scenario: 4
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
- And: The input document contains an RDS DB instance resource
- And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
- And: 'DeletionProtection' has been specified
- And: 'DeletionProtection' has been set to bool(false)
- Then: FAIL

## Scenario: 5
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
- And: The input document contains an RDS DB instance resource
- And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',

Proactive controls
# Constants

let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let SUPPORTED_RDS_INSTANCE_ENGINES = [
    "mariadb", "mysql", "oracle-ee", "oracle-ee-cdb", "oracle-se2",
    "oracle-se2-cdb", "postgres", "sqlserver-ee", "sqlserver-se",
    "sqlserver-ex", "sqlserver-web"
]

# Assignments

let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

# Primary Rules

rule rds_instance_deletion_protection_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%rds_db_instances not empty {
    check(%rds_db_instances.Properties) <<
    [CT.RDS.PR.13]: Require any Amazon RDS instance to have deletion protection configured
    [FIX]: Set 'DeletionProtection' to 'true'.
    >>
}

rule rds_instance_deletion_protection_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties) <<
    [CT.RDS.PR.13]: Require any Amazon RDS instance to have deletion protection configured
    [FIX]: Set 'DeletionProtection' to 'true'.
    >>
# Parameterized Rules

```python
rule check(rds_db_instance) {
    %rds_db_instance [filter_engine(this)] {
        # Scenario: 3
        DeletionProtection exists
        # Scenario: 4 and 5
        DeletionProtection == true
    }
}

rule filter_engine(db_properties) {
    %db_properties {
        # Scenario: 2
        Engine exists
        Engine is_string
        Engine in %SUPPORTED_RDS_INSTANCE_ENGINES
    }
}
```

# Utility Rules

```python
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```
CT.RDS.PR.13 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB Instance secret
    GenerateSecretString:
      SecretStringTemplate: '
"username": "testUser"'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: '"@/\'
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    DeletionProtection: true
    DeletionPolicy: Delete

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
Description: RDS DB Instance secret
GenerateSecretString:
  SecretStringTemplate: '{"username": "testUser"}"
  GenerateStringKey: password
  PasswordLength: 22
  ExcludeCharacters: '@/\'
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername:
      Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::username}"
    MasterUserPassword:
      Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::password}"
    DeletionProtection: false
    DeletionPolicy: Delete

[CT.RDS.PR.14] Require an Amazon RDS database instance to export logs to Amazon CloudWatch Logs by means of the EnableCloudwatchLogsExports property

This rule checks whether Amazon Relational Database Service (RDS) instances have all available log types configured for export to Amazon CloudWatch Logs.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.14 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.14 rule specification](#)
For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.RDS.PR.14 example templates

Explanation

AWS Control Tower recommends that you enable the export of relevant logs for all Amazon RDS databases to Amazon CloudWatch Logs. Database logging provides detailed records of requests made to RDS. Database logs can assist with security and access audits, and they can help you diagnose availability issues.

Usage considerations

- This control applies only to Amazon RDS DB engine types mariadb, mysql, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex, sqlserver-web, oracle-ee, oracle-se2, oracle-se1, and oracle-se.
- Additional prerequisites may exist for enabling logging based on your selected database engine type. Refer to Monitoring Amazon RDS log files in the Amazon RDS User Guide for more information.

Remediation for rule failure

Specify EnableCloudwatchLogsExports with a list of all supported log types for the Amazon RDS database instance engine.

The examples that follow show how to implement this remediation.

Amazon RDS DB Instance - Example One

Amazon RDS DB instance configured with an engine type of mysql and all supported log types, for the mysql engine type. The example is shown in JSON and in YAML.

JSON example

```json
{
    "DBInstance": {
        "Type": "AWS::RDS::DBInstance",
        "Properties": {
```
"Engine": "mysql",
"EngineVersion": 5.7,
"DBInstanceClass": "db.m5.large",
"StorageType": "gp2",
"AllocatedStorage": 5,
"MasterUsername": {
    "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
},
"MasterUserPassword": {
    "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
},
"StorageEncrypted": true,
"EnableCloudwatchLogsExports": [
    "error",
    "general",
    "slowquery",
    "audit"
],
"DeletionPolicy": "Delete"
}

YAML example

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: mysql
    EngineVersion: 5.7
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    StorageEncrypted: true
    EnableCloudwatchLogsExports:
      - error
      - general
      - slowquery
      - audit
The examples that follow show how to implement this remediation.

**Amazon RDS DB Instance - Example Two**

Amazon RDS DB instance configured with an engine type of `postgres` and all supported log types, for the `postgres` engine type. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "DBInstance": {
        "Type": "AWS::RDS::DBInstance",
        "Properties": {
            "Engine": "postgres",
            "EngineVersion": 14.2,
            "DBInstanceClass": "db.m5.large",
            "StorageType": "gp2",
            "AllocatedStorage": 5,
            "MasterUsername": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
            },
            "MasterUserPassword": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
            },
            "EnableCloudwatchLogsExports": [
                "postgresql",
                "upgrade"
            ],
            "DeletionPolicy": "Delete"
        }
    }
}
```

**YAML example**

```yaml
DBInstance:
```

Proactive controls
Type: AWS::RDS::DBInstance
Properties:
  Engine: postgres
  EngineVersion: 14.2
  DBInstanceClass: db.m5.large
  StorageType: gp2
  AllocatedStorage: 5
  MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
  MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
  EnableCloudwatchLogsExports:
    - postgresql
    - upgrade
  DeletionPolicy: Delete

CT.RDS.PR.14 rule specification

# ###################################
##       Rule Specification        ##
#####################################
#
# Rule Identifier:
#   rds_instance_logging_enabled_check
#
# Description:
#   This rules checks whether Amazon Relational Database Service (RDS) instances have all available log types configured for export to Amazon CloudWatch Logs.
#
# Reports on:
#   AWS::RDS::DBInstance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is not one of 'mariadb', 'mysql',
# 'oracle-ee', 'oracle-se2', 'oracle-ee-cdb', 'oracle-se2-cdb',
# 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql',
# 'oracle-ee', 'oracle-se2', 'oracle-ee-cdb', 'oracle-se2-cdb',
# 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# And: 'EnableCloudwatchLogsExports' has not been specified or has been specified and is an empty list
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql',
# 'oracle-ee', 'oracle-se2', 'oracle-ee-cdb', 'oracle-se2-cdb',
# 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# And: 'EnableCloudwatchLogsExports' has been specified and is a non-empty list
# And: One or more log types in 'EnableCloudwatchLogsExports' are not supported by the specified 'Engine'
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql',
# 'oracle-ee', 'oracle-se2', 'oracle-ee-cdb', 'oracle-se2-cdb',
# 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# And: 'EnableCloudwatchLogsExports' has been specified and is a non-empty list
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql'
# And: 'EnableCloudwatchLogsExports' has been specified
# And: 'EnableCloudwatchLogsExports' value is a non-empty and all supported log types
# are enabled - 'audit', 'error', 'general', 'slowquery'
# Then: PASS

# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is 'postgres'
# And: 'EnableCloudwatchLogsExports' has been specified
# And: 'EnableCloudwatchLogsExports' value is a non-empty and all supported log types
# are enabled - 'postgresql', 'upgrade'
# Then: PASS

# Scenario: 8
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is one of 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# And: 'EnableCloudwatchLogsExports' has been specified
# And: 'EnableCloudwatchLogsExports' value is a non-empty and all supported log types
# are enabled - 'agent', 'error'
# Then: PASS

# Scenario: 9
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is one of 'oracle-ee', 'oracle-se2', 'oracle-ee-cdb', 'oracle-se2-cdb',
# And: 'EnableCloudwatchLogsExports' has been specified
# And: 'EnableCloudwatchLogsExports' value is a non-empty and all supported log types
# are enabled - 'alert', 'audit', 'listener', 'oemagent', 'trace'
### Constants

```plaintext
let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let SUPPORTED_RDS_INSTANCE_ENGINES = [
    "mariadb", "mysql", "oracle-ee", "oracle-ee-cdb", "oracle-se2",
    "oracle-se2-cdb", "postgres", "sqlserver-ee", "sqlserver-se",
    "ssqlserver-ex", "sqlserver-web"
]

let MYSQL_OR_MARIA_ENGINES_SUBTYPES = [ "mariadb", "mysql" ]
let POSTGRES_ENGINES_SUBTYPES = [ "postgres" ]
let SQLSERVER_ENGINES_SUBTYPES = [ "sqlserver-ee", "sqlserver-se", "sqlserver-ex",
    "sqlserver-web" ]
let ORACLE_ENGINES_SUBTYPES = [ "oracle-ee", "oracle-se2", "oracle-se1", "oracle-se" ]

let MYSQL_OR_MARIA_SUPPORTED_LOG_TYPES = [ "audit", "error", "general", "slowquery" ]
let POSTGRES_SUPPORTED_LOG_TYPES = [ "postgresql", "upgrade" ]
let SQLSERVER_SUPPORTED_LOG_TYPES = [ "agent", "error" ]
let ORACLE_SUPPORTED_LOG_TYPES = [ "alert", "audit", "listener", "oemagent", "trace" ]
```

### Assignments

```plaintext
let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]
```

### Primary Rules

```plaintext
rule rds_instance_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
    %rds_db_instances not empty {
        check(%rds_db_instances.Properties)
        %rds_db_instances not empty {
            <<=
            [CT.RDS.PR.14]: Require an Amazon RDS database instance to have logging configured
            [FIX]: Specify 'EnableCloudwatchLogsExports' with a list of all supported log types for the Amazon RDS database instance engine.
        } >>>
    }
```
rule rds_instance_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
    [CT.RDS.PR.14]: Require an Amazon RDS database instance to have logging configured
    [FIX]: Specify 'EnableCloudwatchLogsExports' with a list of all supported log types for the Amazon RDS database instance engine.
}

# Parameterized Rules

rule check(rds_db_instance) {
%rds_db_instance [filter_engine(this)] {
    # Scenario: 3
    EnableCloudwatchLogsExports exists
    check_is_list_and_not_empty(EnableCloudwatchLogsExports)

    # Scenario: 4 and 5
    when Engine IN %MYSQL_OR_MARIA_ENGINES_SUBTYPES {
        %MYSQL_OR_MARIA_SUPPORTED_LOG_TYPES.* IN EnableCloudwatchLogsExports[*]
        EnableCloudwatchLogsExports.* IN %MYSQL_OR_MARIA_SUPPORTED_LOG_TYPES[*]
    }

    # Scenario: 4 and 6
    when Engine IN %POSTGRES_ENGINES_SUBTYPES {
        %POSTGRES_SUPPORTED_LOG_TYPES.* IN EnableCloudwatchLogsExports[*]
        EnableCloudwatchLogsExports.* IN %POSTGRES_SUPPORTED_LOG_TYPES[*]
    }

    # Scenario: 4 and 7
    when Engine IN %SQLSERVER_ENGINES_SUBTYPES {
        %SQLSERVER_SUPPORTED_LOG_TYPES.* in EnableCloudwatchLogsExports[*]
        EnableCloudwatchLogsExports.* IN %SQLSERVER_SUPPORTED_LOG_TYPES[*]
    }

    # Scenario: 4 and 8
    when Engine IN %ORACLE_ENGINES_SUBTYPES {
        %ORACLE_SUPPORTED_LOG_TYPES.* in EnableCloudwatchLogsExports[*]
        EnableCloudwatchLogsExports.* IN %ORACLE_SUPPORTED_LOG_TYPES[*]
    }
}
CT.RDS.PR.14 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  DBInstanceSecret:
Type: AWS::SecretsManager::Secret
Properties:
  Description: RDS DB instance secret
  GenerateSecretString:
    SecretStringTemplate: '{"username": "examplemasteruser"}'
    GenerateStringKey: password
    PasswordLength: 22
    ExcludeCharacters: '@/\'

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: mysql
    EngineVersion: 5.7
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername:
      Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::username}'
    MasterUserPassword:
      Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::password}'
    StorageEncrypted: true
    EnableCloudwatchLogsExports:
      - error
      - general
      - slowquery
      - audit
    DeletionPolicy: Delete

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  DBInstanceSecret:
    Type: AWS::SecretsManager::Secret
    Properties:
      Description: RDS DB instance secret
      GenerateSecretString:
        SecretStringTemplate: '{"username": "examplemasteruser"}'
        GenerateStringKey: password
        PasswordLength: 22
[CT.RDS.PR.15] Require that an Amazon RDS instance does not create DB security groups

This control checks whether any Amazon Relational Database Service (RDS) database (DB) security groups are created by, or associated to, an RDS DB instance, because DB security groups are intended for the EC2-Classic platform only.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance, AWS::RDS::DBSecurityGroup
- **AWS CloudFormation guard rule:** [CT.RDS.PR.15 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.15 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.15 example templates](#)
Explanation

We recommend that all Amazon Relational Database Service (RDS) databases use Amazon VPC security groups to secure their access. Amazon DB security groups are for the EC2-Classic platform only, and they are not recommended for use.

Remediation for rule failure

Omit the DBSecurityGroups property. Instead, configure Amazon VPC security groups by means of the VPCSecurityGroups property.

The examples that follow show how to implement this remediation.

Amazon RDS DB Instance - Example

Amazon RDS DB instance configured with an Amazon VPC security group. The example is shown in JSON and in YAML.

JSON example

```
{
   "DBInstance": {
      "Type": "AWS::RDS::DBInstance",
      "Properties": {
         "Engine": "mysql",
         "EngineVersion": 5.7,
         "DBInstanceClass": "db.t3.small",
         "StorageType": "gp2",
         "AllocatedStorage": 5,
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
         },
         "StorageEncrypted": true,
         "Port": 6733,
         "DBSubnetGroupName": {
            "Ref": "DBSubnetGroup"
         },
         "VPCSecurityGroups": [
            {
               "Ref": "SecurityGroup"
            }
         ]
      }
   }
}"
```
YAML example

```
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: mysql
    EngineVersion: 5.7
    DBInstanceClass: db.t3.small
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    StorageEncrypted: true
    Port: 6733
    DBSubnetGroupName: !Ref 'DBSubnetGroup'
    VPCSecurityGroups: - !Ref 'SecurityGroup'
```

CT.RDS.PR.15 rule specification

```
# #######################################################################
#       Rule Specification       #
# #######################################################################
#   Rule Identifier:
#   rds_db_security_group_not_allowed_check
#   Description:
#   This control checks whether any Amazon Relational Database Service (RDS) database (DB) security groups are created by, or associated to, an RDS DB instance, because DB security groups are intended for the EC2-Classic platform only.
```
# Reports on:
#   AWS::RDS::DBSecurityGroup, AWS::RDS::DBInstance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#      Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#             document
#              And: The input document does not contain any DB security group resources
#              And: The input document does not contain any RDS DB instance resources
#              Then: SKIP
#   Scenario: 2
#      Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#             document
#              And: The input document contains a DB security group resource
#              Then: FAIL
#   Scenario: 3
#      Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#             document
#              And: The input document does not contain any DB security group resources
#              And: The input document contains an RDS DB instance resource
#              And: 'DBSecurityGroups' has been specified on the RDS DB instance as a non
#                    empty list
#              Then: FAIL
#   Scenario: 4
#      Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#             document
#              And: The input document does not contain any DB security group resources
#              And: The input document contains an RDS DB instance resource
#              And: 'DBSecurityGroups' has not been specified on the RDS DB instance or
#                    specified as an empty list
#              Then: PASS
#
#
# Constants
#
let DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let DB_SECURITY_GROUP_TYPE = "AWS::RDS::DBSecurityGroup"
let INPUT_DOCUMENT = this
# Assignments

let db_instances = Resources.*[ Type == %DB_INSTANCE_TYPE ]
let db_security_groups = Resources.*[ Type == %DB_SECURITY_GROUP_TYPE ]

# Primary Rules

rule rds_db_security_group_not_allowed_check when is_cfn_template(this)  
  %db_security_groups not empty {
    check_db_security_group(%db_security_groups)
    
    <<
    [CT.RDS.PR.15]: Require that an Amazon RDS instance does not create DB security groups
    
    [FIX]: Omit the 'DBSecurityGroups' property. Instead, configure Amazon VPC security groups by means of the 'VPCSecurityGroups' property.
    
    >>
  }

rule rds_db_security_group_not_allowed_check when is_cfn_template(this)  
  %db_instances not empty {
    check_db_instance(%db_instances.Properties)
    
    <<
    [CT.RDS.PR.15]: Require that an Amazon RDS instance does not create DB security groups
    
    [FIX]: Omit the 'DBSecurityGroups' property. Instead, configure Amazon VPC security groups by means of the 'VPCSecurityGroups' property.
    
    >>
  }

rule rds_db_security_group_not_allowed_check when is_cfn_hook(%INPUT_DOCUMENT,  
  %DB_SECURITY_GROUP_TYPE) {
  check_db_security_group(%INPUTDOCUMENT.%DB_SECURITY_GROUP_TYPE)
  
  <<
  [CT.RDS.PR.15]: Require that an Amazon RDS instance does not create DB security groups
  
  [FIX]: Omit the 'DBSecurityGroups' property. Instead, configure Amazon VPC security groups by means of the 'VPCSecurityGroups' property.
  
  >>
}
rule rds_db_security_group_not_allowed_check when is_cfn_hook(%INPUT_DOCUMENT, %DB_INSTANCE_TYPE) {
    check_db_instance(%INPUT_DOCUMENT.%DB_INSTANCE_TYPE.resourceProperties)
    <<=
        [CT.RDS.PR.15]: Require that an Amazon RDS instance does not create DB security groups
        [FIX]: Omit the 'DBSecurityGroups' property. Instead, configure Amazon VPC security groups by means of the 'VPCSecurityGroups' property.
    >>
}

# Parameterized Rules
#
rule check_db_security_group(db_security_group) {
    # Scenario 2
    %db_security_group empty
}

rule check_db_instance(db_instance) {
    %db_instance {
        # Scenario 3 and 4
        DBSecurityGroups not exists or
        check_is_empty_list(this)
    }
}

rule check_is_empty_list(db_instance_configuration) {
    %db_instance_configuration {
        DBSecurityGroups is_list
        DBSecurityGroups empty
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.RDS.PR.15 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsHostnames: true
    EnableDnsSupport: true
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.96.0/19
    AvailabilityZone: 
      Fn::Select:
        - '0'
        - Fn::GetAZs: {Ref: 'AWS::Region'}
    VpcId:
      Ref: VPC
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.128.0/19
    AvailabilityZone:
      Fn::Select:
        - '1'
        - Fn::GetAZs: {Ref: 'AWS::Region'}
    VpcId:
      Ref: VPC
DBSubnetGroup:
  Type: AWS::RDS::DBSubnetGroup
  Properties:
DBSubnetGroupDescription: DB subnet group
   SubnetIds:
   - Ref: SubnetOne
   - Ref: SubnetTwo

DBInstanceSecret:
   Type: AWS::SecretsManager::Secret
   Properties:
      Description: RDS DB instance secret
      GenerateSecretString:
         SecretStringTemplate: '{"username": "examplemasterusername"}'
         GenerateStringKey: password
         PasswordLength: 22
         ExcludeCharacters: '\@/\'

SecurityGroup:
   Type: AWS::EC2::SecurityGroup
   Properties:
      GroupDescription: Example Security Group
      VpcId:
         Ref: VPC
      SecurityGroupIngress:
      - IpProtocol: tcp
        FromPort: 6733
        ToPort: 6733
        CidrIp: 10.0.0.0/16

DBInstance:
   Type: AWS::RDS::DBInstance
   Properties:
      Engine: mysql
      EngineVersion: 5.7
      DBInstanceClass: db.t3.small
      StorageType: gp2
      AllocatedStorage: 5
      MasterUsername:
         Fn::Sub: '{{$resolve:secretsmanager:{$DBInstanceSecret}::username}}'
      MasterUserPassword:
         Fn::Sub: '{{$resolve:secretsmanager:{$DBInstanceSecret}::password}}'
      StorageEncrypted: true
      Port: 6733
      DBSubnetGroupName:
         Ref: DBSubnetGroup
      VPCSecurityGroups:
      - Ref: SecurityGroup
      DeletionPolicy: Delete
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DBSecurityGroup:
  Type: AWS::RDS::DBSecurityGroup
Properties:
  DBSecurityGroupIngress:
    - CIDRIP: "0.0.0.0/0"
  GroupDescription: "Ingress for Amazon EC2 security group"

[CT.RDS.PR.16] Require an Amazon RDS database cluster to have encryption at rest configured

This control checks whether the storage encryption is configured on Amazon Relational Database Service (RDS) database (DB) clusters that are not being restored from an existing cluster.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBCluster
- **AWS CloudFormation guard rule:** [CT.RDS.PR.16 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.16 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.16 example templates](#)

Explanation

We recommend that you configure your Amazon RDS DB clusters to be encrypted at rest, to give an added layer of security for your sensitive data. To encrypt your RDS DB clusters and snapshots at
rest, enable the encryption option for your RDS DB clusters. Data that is encrypted at rest includes the underlying storage for DB clusters, its automated backups, read replicas, and snapshots.

Encrypted RDS DB clusters use the open standard AES-256 encryption algorithm to encrypt your data on the server that hosts the clusters. After your data is encrypted, Amazon RDS handles authentication of access and decryption of your data with a minimal impact on performance. You do not need to modify your database client applications to use encryption.

Usage considerations

- This control applies only to Amazon RDS DB clusters that are not being restored from an existing cluster or created as a read replica. (For example, when SourceDBClusterIdentifier or ReplicationSourceIdentifier properties have been provided.)

Remediation for rule failure

Set StorageEncrypted to true.

The examples that follow show how to implement this remediation.

Amazon RDS DB Cluster - Example

Amazon RDS DB cluster configured with storage encryption enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
   "DBCluster": {
      "Type": "AWS::RDS::DBCluster",
      "Properties": {
         "Engine": "aurora-mysql",
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::password}}"
         },
         "StorageEncrypted": true
      }
   }
}
```
YAML example

```yaml
DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora-mysql
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBClusterSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBClusterSecret}::password}}'
    StorageEncrypted: true
```

CT.RDS.PR.16 rule specification

```plaintext
# ####################################################################
##       Rule Specification       ##
# ####################################################################
#
# Rule Identifier:
#   rds_cluster_storage_encrypted_check
#
# Description:
#   This control checks whether the storage encryption is configured on Amazon
#   Relational Database Service (RDS) database (DB) clusters that are not being restored
#   from an existing cluster.
#
# Reports on:
#   AWS::RDS::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
```
Scenario: 1
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any RDS DB cluster resources
Then: SKIP
Scenario: 2
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'SourceDBClusterIdentifier' or 'ReplicationSourceIdentifier' has been provided
Then: SKIP
Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'SourceDBClusterIdentifier' or 'ReplicationSourceIdentifier' has not been provided
And: 'StorageEncrypted' has not been provided
Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'SourceDBClusterIdentifier' or 'ReplicationSourceIdentifier' has not been provided
And: 'StorageEncrypted' has been provided and set to bool(false)
Then: FAIL
Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an RDS DB cluster resource
And: 'SourceDBClusterIdentifier' or 'ReplicationSourceIdentifier' has not been provided
And: 'StorageEncrypted' has been provided and set to bool(true)
Then: PASS

Constants

let RDS_CLUSTER_TYPE = "AWS::RDS::DBCluster"
let INPUT_DOCUMENT = this
# Assignments

let rds_cluster = Resources.[ Type == %RDS_CLUSTER_TYPE ]

# Primary Rules

rule rds_cluster_storage_encrypted_check when is_cfn_template(%INPUT_DOCUMENT) %rds_cluster not empty {

  check(%rds_cluster.Properties)
  <<
  [CT.RDS.PR.16]: Require an Amazon RDS database cluster to have encryption at
  rest configured
  [FIX]: Set 'StorageEncrypted' to 'true'.
  >>
}

rule rds_cluster_storage_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_CLUSTER_TYPE.resourceProperties)
  <<
  [CT.RDS.PR.16]: Require an Amazon RDS database cluster to have encryption at
  rest configured
  [FIX]: Set 'StorageEncrypted' to 'true'.
  >>
}

# Parameterized Rules

rule check(rds_cluster) {
  %rds_cluster [
  # Scenario 2
  filter_sources(this)
  ] {
  # Scenario 3
  StorageEncrypted exists

  # Scenario 4 and 5
  StorageEncrypted == true
  }
}

rule filter_sources(rds_cluster) {

}
%rds_cluster {

  # Scenario 2
  SourceDBClusterIdentifier not exists or
  filter_property_is_empty_string(SourceDBClusterIdentifier) or
  filter_is_not_valid_local_reference(%INPUT_DOCUMENT, SourceDBClusterIdentifier,
  "AWS::RDS::DBCluster")

  ReplicationSourceIdentifier not exists or
  filter_property_is_empty_string(ReplicationSourceIdentifier) or
  filter_replication_source_identifier(ReplicationSourceIdentifier)

}

rule filter_property_is_empty_string(value) {
  %value {
    this is_string
    this == /\A\s*\z/
  }
}

rule filter_is_not_valid_local_reference(doc, reference_properties,
  referenced_resource_type) {
  %reference_properties {
    this not is_string
    this is_struct

    when this.'Ref' exists {
      'Ref' {
        when query_for_resource(%doc, this, %referenced_resource_type) {
          this not exists
        }
        this exists
      }
    } else {
      this exists
    }
  }
}

rule filter_replication_source_identifier(reference_properties) {
  filter_is_not_valid_local_reference_via_join(%INPUT_DOCUMENT,
    %reference_properties, "AWS::RDS::DBCluster")

}
filter_is_not_valid_local_reference_via_join(%INPUT_DOCUMENT, %reference_properties, "AWS::RDS::DBInstance")
}

rule filter_is_not_valid_local_reference_via_join(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        this not is_string
        this is_struct

        when this.'Fn::Join' exists {
            'Fn::Join' {
                when filter_list_contains_valid_local_reference(this[1], %doc, referenced_resource_type) {
                    this not exists
                }
                this exists
            }
        }
        when this.'Fn::Join' not exists {
            this exists
        }
    }
}

rule filter_list_contains_valid_local_reference(list, doc, referenced_resource_type) {
    some %list.* {
        check_local_references(%doc, this, referenced_resource_type)
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_resource_type)
            <<Local Stack reference was invalid>>
        }
    }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[keys == %resource_key]
    %referenced_resource not empty
    %referenced_resource {
        Type == %referenced_resource_type
    }
}

CT.RDS.PR.16 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  DBClusterSecret:
    Type: AWS::SecretsManager::Secret
    Properties:
      Description: RDS Cluster secret
      GenerateSecretString:
        SecretStringTemplate: '{"username": "examplemasteruser"}'
        GenerateStringKey: password
        PasswordLength: 16
        ExcludeCharacters: '@\'
  DBCluster:
    Type: AWS::RDS::DBCluster
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

DBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS Cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasteruser"}"
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: '"@/\\' 

DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora-mysql
    MasterUsername:
      Fn::Sub: '{resolve:secretsmanager:${DBClusterSecret}::username}"
    MasterUserPassword:
      Fn::Sub: '{resolve:secretsmanager:${DBClusterSecret}::password}"
    StorageEncrypted: false

[CT.RDS.PR.17] Require an Amazon RDS event notification subscription to have critical database instance events configured

This control checks whether your Amazon RDS event subscriptions for RDS instances are configured to notify on event categories of maintenance, failure, and configuration change.

- **Control objective:** Protect configurations
• **Implementation**: AWS CloudFormation Guard Rule

• **Control behavior**: Proactive

• **Resource types**: AWS::RDS::EventSubscription

• **AWS CloudFormation guard rule**: [CT.RDS.PR.17 rule specification](#)

### Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.17 rule specification](#)

• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.17 example templates](#)

### Explanation

Amazon RDS event notifications use Amazon SNS to make you aware of changes in the availability or configuration of your RDS resources. These notifications allow for rapid response.

#### Usage considerations

- This control applies only to Amazon RDS Event Subscriptions for RDS instances (`SourceType` of `db-instance`).

### Remediation for rule failure

When `SourceType` is set to `db-instance`, set `Enabled` to true and ensure that the parameter `EventCategories` contains `maintenance`, `failure`, and `configuration change` values.

The examples that follow show how to implement this remediation.

#### Amazon RDS Event Subscription - Example One

Amazon RDS Event Subscription for RDS instances configured to notify on all event categories. The example is shown in JSON and in YAML.

#### JSON example

```json
{

```
The examples that follow show how to implement this remediation.

**Amazon RDS Event Subscription - Example Two**

Amazon RDS Event Subscription for RDS instances configured to notify on maintenance, failure, and configuration change event categories. The example is shown in JSON and in YAML.

**JSON example**

```
{
    "RDSEventSubscription": {
        "Type": "AWS::RDS::EventSubscription",
        "Properties": {
            "SnsTopicArn": {
                "Ref": "SnsTopic"
            },
            "SourceType": "db-instance",
            "Enabled": true
        }
    }
}
```

**YAML example**

```
RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
    SnsTopicArn: !Ref 'SnsTopic'
    SourceType: db-instance
    Enabled: true
```

Proactive controls
"EventCategories": [  "maintenance",  "failure",  "configuration change"],  "SourceType": "db-instance",  "Enabled": true
}

YAML example

RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
    SnsTopicArn: !Ref 'SnsTopic'
    EventCategories:
      - maintenance
      - failure
      - configuration change
    SourceType: db-instance
    Enabled: true

CT.RDS.PR.17 rule specification

# ###################################################################
## Rule Specification  ##
# ###################################################################
# Rule Identifier:
# rds_instance_event_notifications_configured_check
# Description:
# Checks whether Amazon RDS event subscriptions for RDS instances are configured to
# notify on event categories of 'maintenance', 'failure', and 'configuration change'.
# Reports on:

Proactive controls
# AWS::RDS::EventSubscription

# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document does not contain any Amazon RDS event subscription
#          Resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document contains an Amazon RDS event subscription resource
#     And: 'SourceType' is provided and is not 'db-instance'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document contains an Amazon RDS event subscription resource
#     And: 'SourceType' is 'db-instance'
#     And: 'Enabled' is not provided or set to bool(false)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document contains an Amazon RDS event subscription resource
#     And: 'SourceType' is provided and is 'db-instance'
#     And: 'Enabled' is provided and set to bool(true)
#     And: 'EventCategories' does not contain 'maintenance', 'failure', and'
#          'configuration change'
#     Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document contains an Amazon RDS event subscription resource
#     And: 'SourceType' is provided and is 'db-instance'
#     And: 'Enabled' is provided and set to bool(true)
#     And: 'EventCategories' does not exist or is an empty list
# Then: PASS
# Scenario: 6
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon RDS event subscription resource
# And: 'SourceType' is provided and is 'db-instance'
# And: 'Enabled' is provided and set to bool(true)
# And: 'EventCategories' contains 'maintenance', 'failure', and 'configuration change'
# Then: PASS

# Constants
#
let RDS_EVENTSUBSCRIPTION_TYPE = "AWS::RDS::EventSubscription"
let INPUT_DOCUMENT = this
let EVENT_CATEGORIES = ["maintenance","failure","configuration change"]
let EVENT_SOURCE_TYPE = "db-instance"

# Assignments
#
let rds_event_subscriptions = Resources.*[ Type == %RDS_EVENTSUBSCRIPTION_TYPE ]

# Primary Rules
#
rule rds_instance_event_notifications_configured_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %rds_event_subscriptions not empty
  check(%rds_event_subscriptions.Properties)
  <<
  [CT.RDS.PR.17]: Require an Amazon RDS event notification subscription to have critical database instance events configured
  [FIX]: When 'SourceType' is set to 'db-instance', set 'Enabled' to true and ensure that the parameter 'EventCategories' contains 'maintenance', 'failure', and 'configuration change' values.
  >>
}

rule rds_instance_event_notifications_configured_check when
  is_cfn_hook(%INPUT_DOCUMENT, %RDS_EVENTSUBSCRIPTION_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_EVENTSUBSCRIPTION_TYPE.resourceProperties)
[CT.RDS.PR.17]: Require an Amazon RDS event notification subscription to have critical database instance events configured

[FIX]: When 'SourceType' is set to 'db-instance', set 'Enabled' to true and ensure that the parameter 'EventCategories' contains 'maintenance', 'failure', and 'configuration change' values.

```
rule check(resource) {
  %resource [SourceType == %EVENT_SOURCE_TYPE ] {
    Enabled exists
    # Scenario 4
    Enabled == true
    # Scenario 5
    EventCategories not exists or
    # Scenario 6
    check_event_categories_for_required_events(EventCategories)
  }
}

rule check_event_categories_for_required_events(event_categories) {
  %event_categories {
    this exists
    this is_list
    this empty or
    %EVENT_CATEGORIES.* in this
  }
}

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
```
CT.RDS.PR.17 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
SNSTopic:
  Type: AWS::SNS::Topic
  Properties: {}
RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
    SnsTopicArn:
      Ref: SNSTopic
    SourceType: db-instance
    Enabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
SNSTopic:
  Type: AWS::SNS::Topic
  Properties: {}
RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
    SnsTopicArn:
      Ref: SNSTopic
    EventCategories:
      - maintenance
[CT.RDS.PR.18] Require an Amazon RDS event notification subscription to have critical database parameter group events configured

This control checks whether your Amazon RDS event subscriptions for RDS parameter groups are configured to notify on event categories of configuration change.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::EventSubscription
- **AWS CloudFormation guard rule:** [CT.RDS.PR.18 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.18 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.18 example templates](#)

**Explanation**

Amazon RDS event notifications use Amazon SNS to make you aware of changes in the availability or configuration of your RDS resources. These notifications allow for rapid response.

**Usage considerations**

- This control applies only to Amazon RDS event subscriptions for RDS parameter groups (SourceType of db-parameter-group).
Remediation for rule failure

When `SourceType` is set to `db-parameter-group`, set `Enabled` to `true` and ensure that the `parameter EventCategories` contains `configuration change` as a value.

The examples that follow show how to implement this remediation.

**Amazon RDS Event Subscription - Example One**

Amazon RDS event subscription for RDS parameter groups configured to notify on all event categories. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "RDSEventSubscription": {
    "Type": "AWS::RDS::EventSubscription",
    "Properties": {
      "SnsTopicArn": {
        "Ref": "SnsTopic"
      },
      "SourceType": "db-parameter-group",
      "Enabled": true
    }
  }
}
```

**YAML example**

```
RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
    SnsTopicArn: !Ref 'SnsTopic'
    SourceType: db-parameter-group
    Enabled: true
```

The examples that follow show how to implement this remediation.
Amazon RDS Event Subscription - Example Two

Amazon RDS event subscription for RDS parameter groups configured to notify on the configuration change event category. The example is shown in JSON and in YAML.

**JSON example**

```
{
  "RDSEventSubscription": {
    "Type": "AWS::RDS::EventSubscription",
    "Properties": {
      "SnsTopicArn": {
        "Ref": "SnsTopic"
      },
      "EventCategories": [
        "configuration change"
      ],
      "SourceType": "db-parameter-group",
      "Enabled": true
    }
  }
}
```

**YAML example**

```
RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
    SnsTopicArn: !Ref 'SnsTopic'
    EventCategories:
      - configuration change
    SourceType: db-parameter-group
    Enabled: true
```

CT.RDS.PR.18 rule specification

```
# ###################################################################
```

Proactive controls
## Rule Specification

# Rule Identifier:
#   rds_pg_event_notifications_configured_check
#
# Description:
#   Checks whether Amazon RDS event subscriptions for RDS parameter groups are
#   configured to notify on event categories of 'configuration change'.
# # Reports on:
#   AWS::RDS::EventSubscription
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document does not contain any RDS event subscription resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document contains an RDS event subscription resource
#       And: 'SourceType' is provided and is not 'db-parameter-group'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document contains an RDS event subscription resource
#       And: 'SourceType' is 'db-parameter-group'
#       And: 'Enabled' is not provided or set to bool(false)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document contains an RDS event subscription resource
#       And: 'SourceType' is provided and is 'db-parameter-group'
#       And: 'Enabled' is provided and set to bool(true)
And: 'EventCategories' does not contain 'configuration change'
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains an RDS event subscription resource
And: 'SourceType' is provided and is 'db-parameter-group'
And: 'Enabled' is provided and set to bool(true)
And: 'EventCategories' does not exist or is an empty list
Then: PASS

Scenario: 6
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains an RDS event subscription resource
And: 'SourceType' is provided and is 'db-parameter-group'
And: 'Enabled' is provided and set to bool(true)
And: 'EventCategories' contains 'configuration change'
Then: PASS

# Constants

let RDS_EVENTSUBSCRIPTION_TYPE = "AWS::RDS::EventSubscription"
let INPUT_DOCUMENT = this
let EVENT_CATEGORIES = ["configuration change"]
let EVENT_SOURCE_TYPE = "db-parameter-group"

# Assignments

let rds_event_subscriptions = Resources.*[ Type == %RDS_EVENTSUBSCRIPTION_TYPE ]

# Primary Rules

rule rds_pg_event_notifications_configured_check when is_cfn_template(%INPUT_DOCUMENT) %rds_event_subscriptions not empty {
    check(%rds_event_subscriptions.Properties)
    <<
    [CT.RDS.PR.18]: Require an Amazon RDS event notification subscription to have critical database parameter group events configured
When 'SourceType' is set to 'db-parameter-group', set 'Enabled' to true and ensure that the parameter 'EventCategories' contains 'configuration change' as a value.

```py
rule rds_pg_event_notifications_configured_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_EVENTSUBSCRIPTION_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_EVENTSUBSCRIPTION_TYPE.resourceProperties)

    [CT.RDS.PR.18]: Require an Amazon RDS event notification subscription to have critical database parameter group events configured

    [FIX]: When 'SourceType' is set to 'db-parameter-group', set 'Enabled' to true and ensure that the parameter 'EventCategories' contains 'configuration change' as a value.
}
```

# Parameterized Rules

rule check(resource) {
    %resource [ SourceType == %EVENT_SOURCE_TYPE ] {
        Enabled exists
        # Scenario 4
        Enabled == true
        # Scenario 5
        EventCategories not exists or
        # Scenario 6
        check_event_categories_for_required_events(EventCategories)
    }
}

rule check_event_categories_for_required_events(event_categories) {
    %event_categories {
        this exists
        this is_list
        this empty or
        %EVENT_CATEGORIES.* in this
    }
}

# Utility Rules
# rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.RDS.PR.18 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
SNSTopic:
  Type: AWS::SNS::Topic
  Properties: {}
RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
    SnsTopicArn:
      Ref: SNSTopic
    SourceType: db-parameter-group
    Enabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
SNSTopic:
[CT.RDS.PR.19] Require an Amazon RDS event notifications subscription to have critical database security group events configured

This control checks whether your Amazon RDS event subscriptions for RDS security groups are configured to notify on event categories of failure and configuration change

- **Control objective**: Protect configurations
- **Implementation**: AWS CloudFormation Guard Rule
- **Control behavior**: Proactive
- **Resource types**: AWS::RDS::EventSubscription
- **AWS CloudFormation guard rule**: [CT.RDS.PR.19 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.19 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.19 example templates](#)

**Explanation**

Amazon RDS event notifications use Amazon SNS to make you aware of changes in the availability or configuration of your RDS resources. These notifications allow for a rapid response.
## Usage considerations

- This control applies only to Amazon RDS Event Subscriptions for RDS security groups (SourceType of db-security-group)

## Remediation for rule failure

When SourceType is set to db-security-group, set Enabled to true and ensure that the parameter EventCategories contains both failure and configuration change values.

The examples that follow show how to implement this remediation.

### Amazon RDS Event Subscription - Example One

Amazon RDS Event Subscription for RDS security groups configured to notify on all event categories. The example is shown in JSON and in YAML.

#### JSON example

```json
{
  "RDSEventSubscription": {
    "Type": "AWS::RDS::EventSubscription",
    "Properties": {
      "SnsTopicArn": {
        "Ref": "SnsTopic"
      },
      "SourceType": "db-security-group",
      "Enabled": true
    }
  }
}
```

#### YAML example

```yaml
RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
```

Proactive controls

1980
The examples that follow show how to implement this remediation.

**Amazon RDS Event Subscription - Example Two**

Amazon RDS Event Subscription for RDS security groups configured to notify on failure and configuration change event categories. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "RDSEventSubscription": {
    "Type": "AWS::RDS::EventSubscription",
    "Properties": {
      "SnsTopicArn": {
        "Ref": "SnsTopic"
      },
      "EventCategories": [
        "failure",
        "configuration change"
      ],
      "SourceType": "db-security-group",
      "Enabled": true
    }
  }
}
```

**YAML example**

```yaml
RDSEventSubscription:
  Type: AWS::RDS::EventSubscription
  Properties:
    SnsTopicArn: !Ref 'SnsTopic'
    EventCategories:
      - failure
```

Proactive controls
CT.RDS.PR.19 rule specification

# ####################################################################
##       Rule Specification        ##
# ####################################################################
#
# Rule Identifier:
#   rds_sg_event_notifications_configured_check
#
# Description:
#   Checks whether an Amazon RDS event subscription for RDS security groups are
#   configured to notify on event categories of 'failure' and 'configuration change'.
#
# Reports on:
#   AWS::RDS::EventSubscription
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document does not contain any Amazon RDS event subscription
#          resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document contains an Amazon RDS event subscription Resource
#          And: 'SourceType' is provided and is not 'db-security-group'
#          And: SourceType: db-security-group
#     Then: SKIP
#   Scenario: 3

Proactive controls

1982
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon RDS event subscription resource
# And: 'SourceType' is 'db-security-group'
# And: 'Enabled' is not provided or set to bool(false)
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon RDS event subscription resource
# And: 'SourceType' is provided and is 'db-security-group'
# And: 'Enabled' is provided and set to bool(true)
# And: 'EventCategories' does not contain both 'failure' and 'configuration change'
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon RDS event subscription resource
# And: 'SourceType' is provided and is 'db-security-group'
# And: 'Enabled' is provided and set to bool(true)
# And: 'EventCategories' does not exist or is an empty list
# Then: PASS

# Scenario: 6
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon RDS event subscription resource
# And: 'SourceType' is provided and is 'db-security-group'
# And: 'Enabled' is provided and set to bool(true)
# And: 'EventCategories' contains both 'failure' and 'configuration change'
# Then: PASS

# Constants
#
let RDS_EVENTSUBSCRIPTION_TYPE = "AWS::RDS::EventSubscription"
let INPUT_DOCUMENT = this
let EVENT_CATEGORIES = ["failure","configuration change"]
let EVENT_SOURCE_TYPE = "db-security-group"

# Assignments
#
let rds_event_subscriptions = Resources.*[ Type == %RDS_EVENTSUBSCRIPTION_TYPE ]
# Primary Rules

```rb
rule rds_sg_event_notifications_configured_check when is_cfn_template(%INPUT_DOCUMENT)
  %rds_event_subscriptions not empty {
    check(%rds_event_subscriptions.Properties)
    <<
    [CT.RDS.PR.19]: Require an Amazon RDS event notifications subscription to have critical database security group events configured
    [FIX]: When 'SourceType' is set to 'db-security-group', set 'Enabled' to true and ensure that the parameter 'EventCategories' contains both 'failure' and 'configuration change' values.
    >>
  }

rule rds_sg_event_notifications_configured_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_EVENTSUBSCRIPTION_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_EVENTSUBSCRIPTION_TYPE.resourceProperties)
  <<
  [CT.RDS.PR.19]: Require an Amazon RDS event notifications subscription to have critical database security group events configured
  [FIX]: When 'SourceType' is set to 'db-security-group', set 'Enabled' to true and ensure that the parameter 'EventCategories' contains both 'failure' and 'configuration change' values.
  >>
}
```

# Parameterized Rules

```rb
rule check(resource) {
  %resource [ SourceType == %EVENT_SOURCE_TYPE ] {
    Enabled exists
    # Scenario 4
    Enabled == true
    # Scenario 5
    EventCategories not exists or
    # Scenario 6
    check_event_categories_for_required_events(EventCategories)
  }
}
```
rule check_event_categories_for_required_events(event_categories) {
    %event_categories {
        this exists
        this is_list
        this empty or
        %EVENT_CATEGORIES.* in this
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.RDS.PR.19 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  SNSTopic:
    Type: AWS::SNS::Topic
    Properties: {}
  RDSEventSubscription:
    Type: AWS::RDS::EventSubscription
    Properties:
      SnsTopicArn:
        Ref: SNSTopic
        SourceType: db-security-group
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

```yaml
Resources:
  SNSTopic:
    Type: AWS::SNS::Topic
    Properties: {}
  RDSEventSubscription:
    Type: AWS::RDS::EventSubscription
    Properties:
      SnsTopicArn:
        Ref: SNSTopic
      EventCategories:
      - failure
      SourceType: db-security-group
      Enabled: true
```

[CT.RDS.PR.20] Require an Amazon RDS database instance not to use a database engine default port

This control checks whether Amazon Relational Database Service (RDS) database instances are configured for default database port for their specific engine types.

- **Control objective**: Limit network access
- **Implementation**: AWS CloudFormation Guard Rule
- **Control behavior**: Proactive
- **Resource types**: AWS::RDS::DBInstance
- **AWS CloudFormation guard rule**: [CT.RDS.PR.20 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.20 rule specification](#)
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.RDS.PR.20 example templates

Explanation

If you use a known port to deploy an Amazon RDS cluster or instance, an attacker can guess information about the cluster or instance. The attacker can use this information in conjunction with other information to connect to an Amazon RDS cluster or instance, or to gain additional information about your application.

When you change the port, you must also update the existing connection strings that were used to connect to the old port. You also should check the security group of the DB instance to ensure that it includes an ingress rule that allows connectivity on the new port.

Usage considerations

- This control applies only to Amazon RDS DB engine types mariadb, mysql, oracle-ee, oracle-se2, oracle-ee-cdb, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex and sqlserver-web.

Remediation for rule failure

Set a value for Port that is different than the default value for the Amazon RDS DB instance engine type.

The examples that follow show how to implement this remediation.

Amazon RDS DB Instance - Example One

Amazon RDS DB instance configured with a port that's different than the mysql engine default port. The example is shown in JSON and in YAML.

JSON example

```json
{
  "DBInstance": {
    "Type": "AWS::RDS::DBInstance",
    "Properties": {
      "Engine": "mysql",
```
"EngineVersion": 5.7,
"DBInstanceClass": "db.m5.large",
"StorageType": "gp2",
"AllocatedStorage": 5,
"MasterUsername": {
    "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
},
"MasterUserPassword": {
    "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
},
"StorageEncrypted": true,
"Port": 6733

"DeletionPolicy": "Delete"
}

YAML example

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: mysql
    EngineVersion: 5.7
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    StorageEncrypted: true
    Port: 6733
    DeletionPolicy: Delete

The examples that follow show how to implement this remediation.

Amazon RDS DB Instance - Example Two

Amazon RDS DB instance configured with a port that's different than the postgres engine default port. The example is shown in JSON and in YAML.
**JSON example**

```json
{
   "DBInstance": {
      "Type": "AWS::RDS::DBInstance",
      "Properties": {
         "Engine": "postgres",
         "EngineVersion": 14.2,
         "DBInstanceClass": "db.m5.large",
         "StorageType": "gp2",
         "AllocatedStorage": 5,
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
         },
         "Port": 5723
      },
      "DeletionPolicy": "Delete"
   }
}
```

**YAML example**

```
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    Port: 5723
  DeletionPolicy: Delete
```
CT.RDS.PR.20 rule specification

# ###################################################################
##       Rule Specification        ##
###################################################################

# # Rule Identifier:
# rds_instance_no_default_ports_check
#
# # Description:
# This control checks whether Amazon Relational Database Service (RDS) database
instances are configured for default database port for their specific engine types.
#
# # Reports on:
# AWS::RDS::DBInstance
#
# # Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# # Rule Parameters:
# None
#
# # Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document does not contain any Amazon RDS DB instance resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is not one of 'mariadb', 'mysql',
# 'oracle-ee', 'oracle-se2', 'oracle-ee-cdb', 'oracle-se2-cdb',
# 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql',
# 'oracle-ee', 'oracle-se2', 'oracle-ee-cdb', 'oracle-se2-cdb',
# 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
#       And: 'Port' has not been specified
#       Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an RDS DB instance resource
#       And: 'Engine' is one of 'mariadb', 'mysql',
#       'oracle-ee', 'oracle-se2', 'oracle-ee-cdb', 'oracle-se2-cdb',
#       'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
#       And: 'Port' has been specified
#       And: 'Port' value is default port (includes mysql/mariadb port '3306',
sqlserver
#       port '1433', postgres port '5432', and oracle port '1521')
#       Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an RDS DB instance resource
#       And: 'Engine'  is one of 'mariadb', 'mysql'
#       And: 'Port' has been specified
#       And: 'Port' value is not equal to '3306'
#       Then: PASS
#   Scenario: 6
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an RDS DB instance resource
#       And: 'Engine' is 'postgres'
#       And: 'Port' has been specified
#       And: 'Port' value is not equal to '5432'
#       Then: PASS
#   Scenario: 7
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#       And: The input document contains an RDS DB instance resource
#       And: 'Engine' is one of 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex',
'sqlserver-web'
#       And: 'Port' has been specified
#       And: 'Port' value is not equal to '1433'
#       Then: PASS
#   Scenario: 8
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#   And: The input document contains an RDS DB instance resource
#   And: 'Engine' is one of 'oracle-ee', 'oracle-se2', 'oracle-ee-cdb', 'oracle-se2-cdb',
#   And: 'Port' has been specified
#   And: 'Port' value is not equal to '1521'
#   Then: PASS

# Constants
#
let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let ORACLE_ENGINES = [ "oracle-ee", "oracle-se2", "oracle-se1", "oracle-se" ]
let SQLSERVER_ENGINES = [ "sqlserver-ee", "sqlserver-se", "sqlserver-ex", "sqlserver-web" ]
let MYSQL_OR_MARIA_ENGINES = [ "mariadb", "mysql" ]
let POSTGRES_ENGINES = [ "postgres" ]
let MYSQL_MARIA_DEFAULT_PORTS = [3306, "3306"]
let POSTGRES_DEFAULT_PORTS = [5432, "5432"]
let SQL_DEFAULT_PORTS = [1433, "1433"]
let ORACLE_DEFAULT_PORTS = [1521, "1521"]

# Assignments
#
let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

# Primary Rules
#
rule rds_instance_no_default_ports_check when is_cfn_template(%INPUT_DOCUMENT)
%rds_db_instances not empty {
    check(%rds_db_instances.Properties) %rds_db_instances not empty {
        [CT.RDS.PR.20]: Require an Amazon RDS database instance not to use a database engine default port
        [FIX]: Set a value for 'Port' that is different than the default value for the Amazon RDS DB instance engine type.
    }
}
rule rds_instance_no_default_ports_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
    <<
    [CT.RDS.PR.20]: Require an Amazon RDS database instance not to use a database engine default port
    [FIX]: Set a value for 'Port' that is different than the default value for the Amazon RDS DB instance engine type.
    >>
}

# Parameterized Rules

rule check(rds_db_instance) {
    # Scenario: 4 and 5
    %rds_db_instance[ filter_engine(this, %MYSQL_OR_MARIA_ENGINES) ] {
        check_port(Port, %MYSQL_MARIA_DEFAULT_PORTS)
    }
    # Scenario: 4 and 6
    %rds_db_instance[ filter_engine(this, %POSTGRES_ENGINES) ] {
        check_port(Port, %POSTGRES_DEFAULT_PORTS)
    }
    # Scenario: 4 and 7
    %rds_db_instance[ filter_engine(this, %SQLSERVER_ENGINES) ] {
        check_port(Port, %SQL_DEFAULT_PORTS)
    }
    # Scenario: 4 and 8
    %rds_db_instance[ filter_engine(this, %ORACLE_ENGINES) ] {
        check_port(Port, %ORACLE_DEFAULT_PORTS)
    }
}

rule filter_engine(db_properties, engine) {
    %db_properties {
        # Scenario: 2
        Engine exists
        Engine is_string
        Engine in %engine
    }
}

rule check_port(port, default_ports) {
    # Scenario: 3

# Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

## CT.RDS.PR.20 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:**

```yaml
DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB instance secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "testUser"}'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: '@\/

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: mysql
    EngineVersion: 5.7
```
DBInstanceClass: db.m5.large
StorageType: gp2
AllocatedStorage: 5
MasterUsername:
  Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
MasterUserPassword:
  Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
Port: 6733
DeletionPolicy: Delete

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  DBInstanceSecret:
    Type: AWS::SecretsManager::Secret
    Properties:
      Description: RDS DB instance secret
      GenerateSecretString:
        SecretStringTemplate: '{"username": "testUser"}
        GenerateStringKey: password
        PasswordLength: 22
        ExcludeCharacters: '"@/\'
  DBInstance:
    Type: AWS::RDS::DBInstance
    Properties:
      Engine: mysql
      EngineVersion: 5.7
      DBInstanceClass: db.m5.large
      StorageType: gp2
      AllocatedStorage: 5
      MasterUsername:
        Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
      MasterUserPassword:
        Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
      Port: 3306
      DeletionPolicy: Delete
[CT.RDS.PR.21] Require an Amazon RDS DB cluster to have a unique administrator username

This control checks whether an Amazon Relational Database Service (RDS) database (DB) cluster has changed the administrator username from its default value.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBCluster
- **AWS CloudFormation guard rule:** [CT.RDS.PR.21 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.21 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.21 example templates](#)

**Explanation**

When you create an Amazon RDS database, we recommend that you change the default administrator username to a unique value. Default user names are public knowledge, and they should be changed, because changing these user names reduces the risk of unintended access.

**Usage considerations**

- This control applies only to Amazon RDS DB clusters that set the MasterUsername property.

**Remediation for rule failure**

Set MasterUsername to a value other than admin or postgres.

The examples that follow show how to implement this remediation.
Amazon RDS DB Cluster - Example

Amazon RDS DB cluster configured with a unique administrator username. The example is shown in JSON and in YAML.

JSON example

```
{
    "DBCluster": {
        "Type": "AWS::RDS::DBCluster",
        "Properties": {
            "Engine": "aurora-mysql",
            "MasterUsername": "samplemasteruser",
            "MasterUserPassword": {
                "Fn::Sub": "{{resolve:secretsmanager:${RDSClusterSecret}::password}}"
            },
            "DBSubnetGroupName": {
                "Ref": "DBSubnetGroup"
            }
        }
    }
}
```

YAML example

```
DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora-mysql
    MasterUsername: samplemasteruser
    MasterUserPassword: !Sub '{[resolve:secretsmanager:${RDSClusterSecret}::password]}'
    DBSubnetGroupName: !Ref 'DBSubnetGroup'
```

CT.RDS.PR.21 rule specification

```
# ##################################################################
### Rule Specification ###
```
# Rule Identifier:
#   rds_cluster_default_admin_check
#
# Description:
#   This control checks whether an Amazon Relational Database Service (RDS) database (DB) cluster has changed the administrator username from its default value.
#
# Reports on:
#   AWS::RDS::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any RDS DB cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB cluster resource
#     And: 'MasterUsername' has not been provided
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB cluster resource
#     And: 'MasterUsername' has been provided and it is set to 'admin' or 'postgres'
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an RDS DB cluster resource
#     And: 'MasterUsername' has been provided and is not set to 'admin' or 'postgres'
#     Then: PASS
# Constants
#
let RDS_DB_CLUSTER_TYPE = "AWS::RDS::DBCluster"
let DISALLOWED_MASTER_USERNAMES = ["admin", "postgres"]
let INPUT_DOCUMENT = this
#
# Assignments
#
let db_clusters = Resources.*[ Type == %RDS_DB_CLUSTER_TYPE ]
#
# Primary Rules
#
rule rds_cluster_default_admin_check when is_cfn_template(%INPUT_DOCUMENT) {  
    %db_clusters not empty {  
        check(%db_clusters.Properties)  
        <<  
        [CT.RDS.PR.21]: Require an Amazon RDS DB cluster to have a unique administrator username  
        [FIX]: Set 'MasterUsername' to a value other than 'admin' or 'postgres'.  
        >>  
    }  
}
rule rds_cluster_default_admin_check when is_cfn_hook(%INPUT_DOCUMENT,  
    %RDS_DB_CLUSTER_TYPE) {  
    check(%INPUT_DOCUMENT.%RDS_DB_CLUSTER_TYPE.resourceProperties)  
    <<  
    [CT.RDS.PR.21]: Require an Amazon RDS DB cluster to have a unique administrator username  
    [FIX]: Set 'MasterUsername' to a value other than 'admin' or 'postgres'.  
    >>  
}
rule check(db_cluster) {  
    %db_cluster [  
        # scenario 2  
        filter_master_username_provided(this)  
    ] {  
        # scenario 3 and 4  
        MasterUsername not in %DISALLOWED_MASTER_USERNAMES  
    }  
}
CT.RDS.PR.21 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsHostnames: true
    EnableDnsSupport: true
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId: REF: VPC
    CidrBlock: 10.0.0.0/25
AvailabilityZone:
  Fn::Select:
  - 0
  - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.0.128/25
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
    VpcId:
      Ref: VPC

DBSubnetGroup:
  Type: AWS::RDS::DBSubnetGroup
  Properties:
    DBSubnetGroupDescription: DB subnet group for DBCluster
    SubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo

DBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasteruser"}'
      GenerateStringKey: password
      PasswordLength: 32
      ExcludeCharacters: "/@"\"

DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora-mysql
    MasterUsername: examplemasteruser
    MasterUserPassword:
      Fn::Sub: '{[resolve:secretsmanager:${DBClusterSecret}::password]}'
    DBSubnetGroupName:
      Ref: DBSubnetGroup
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsHostnames: true
    EnableDnsSupport: true
SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/25
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''
SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    CidrBlock: 10.0.0.128/25
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''
    VpcId:
      Ref: VPC
DBSubnetGroup:
  Type: AWS::RDS::DBSubnetGroup
  Properties:
    DBSubnetGroupDescription: DB subnet group for DBCluster
    SubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo
DBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB cluster secret
    GenerateSecretString:
SecretStringTemplate: '{"username": "examplemasteruser"}'
GenerateStringKey: password
PasswordLength: 32
ExcludeCharacters: "/@"'\""

DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora-mysql
    MasterUsername: admin
    MasterUserPassword:
      Fn::Sub: '{{$resolve:secretsmanager:${DBClusterSecret}:password}}'
  DBSubnetGroupName:
    Ref: DBSubnetGroup

[CT.RDS.PR.22] Require an Amazon RDS database instance to have a unique administrator username

This control checks whether an Amazon Relational Database Service (RDS) database has changed the administrator username from its default value.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.22 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.22 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.22 example templates](#)

Explanation
Default administrative usernames on Amazon RDS databases are public knowledge. When creating an Amazon RDS database, you should change the default administrative username to a unique value, thereby reducing the risk of unintended access.

### Usage considerations

- This control applies only to Amazon RDS DB engine types mariadb, mysql, oracle-ee, oracle-ee-cdb, oracle-se2, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex, and sqlserver-web.

### Remediation for rule failure

Set MasterUsername to a value other than postgres or admin.

The examples that follow show how to implement this remediation.

**Amazon RDS DB Instance - Example**

Amazon RDS DB instance configured with a custom administrator username. The example is shown in JSON and in YAML.

#### JSON example

```json
{
   "DBInstance": {
      "Type": "AWS::RDS::DBInstance",
      "Properties": {
         "Engine": "postgres",
         "EngineVersion": 14.2,
         "DBInstanceClass": "db.m5.large",
         "StorageType": "gp2",
         "AllocatedStorage": 5,
         "MasterUsername": "testUser",
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
         }
      }
   },
   "DeletionPolicy": "Delete"
}
```
**YAML example**

```yaml
DBInstance:
  Type: AWS::RDS::DBInstance
Properties:
  Engine: postgres
  EngineVersion: 14.2
  DBInstanceClass: db.m5.large
  StorageType: gp2
  AllocatedStorage: 5
  MasterUsername: testUser
  MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
DeletionPolicy: Delete
```

**CT.RDS.PR.22 rule specification**

```yaml
# ############################################################################
## Rule Specification
# ############################################################################

# Rule Identifier:
# rds_instance_default_admin_check
#
# Description:
# This control checks whether an Amazon Relational Database Service (RDS) database
# has changed the administrator username from its default value.
#
# Reports on:
# AWS::RDS::DBInstance
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
```
# Scenario: 1
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document does not contain any RDS DB instance resources
#       Then: SKIP
# Scenario: 2
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains an RDS DB instance resource
#       And: 'Engine' is not one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
#             'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
#       Then: SKIP
# Scenario: 3
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains an RDS DB instance resource
#       And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
#             'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
#       And: 'MasterUsername' has been specified and is one of 'postgres' or 'admin'
#       Then: FAIL
# Scenario: 4
#   Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains an RDS DB instance resource
#       And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
#             'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
#       And: 'MasterUsername' has been specified and is not one of 'postgres' or 'admin'
#       Then: PASS

# Constants
#
let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let SUPPORTED_RDS_INSTANCE_ENGINES = [
  "mariadb", "mysql", "oracle-ee", "oracle-ee-cdb", "oracle-se2",
  "oracle-se2-cdb", "postgres", "sqlserver-ee", "sqlserver-se", "sqlserver-ex",
]
let RDS_DEFAULT_USERNAMES = [ "postgres", "admin" ]

# # Assignments #
let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

# # Primary Rules #
rule rds_instance_default_admin_check when is_cfn_template(%INPUT_DOCUMENT) {
check(%rds_db_instances.Properties)
<<
[CT.RDS.PR.22]: Require an Amazon RDS database instance to have a unique administrator username
[FIX]: Set 'MasterUsername' to a value other than 'postgres' or 'admin'.
>>
}

rule rds_instance_default_admin_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
<<
[CT.RDS.PR.22]: Require an Amazon RDS database instance to have a unique administrator username
[FIX]: Set 'MasterUsername' to a value other than 'postgres' or 'admin'.
>>
}

# # Parameterized Rules #
rule check(rds_db_instance) {
%rds_db_instance [ filter_engine_and_master_username_provided(this) ] { # Scenario: 3 and 4
MasterUsername not in %RDS_DEFAULT_USERNAMES
}
}

rule filter_engine_and_master_username_provided(db_properties) {
%db_properties {

# Scenario: 2
MasterUsername exists
Engine exists
Engine is_string
Engine in %SUPPORTED_RDS_INSTANCE_ENGINES

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.RDS.PR.22 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
DBInstanceSecret:
    Type: AWS::SecretsManager::Secret
Properties:
    Description: Test RDS DB Instance secret
    GenerateSecretString:
        SecretStringTemplate: '{"username": "testUser"}'
        GenerateStringKey: password
        PasswordLength: 22
        ExcludeCharacters: '@/'
DBInstance:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
  Description: Test RDS DB Instance secret
  GenerateSecretString:
    SecretStringTemplate: '{"username": "testUser"}'
    GenerateStringKey: password
    PasswordLength: 22
    ExcludeCharacters: '"/@\'

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
  Engine: postgres
  EngineVersion: 14.2
  DBInstanceClass: db.m5.large
  StorageType: gp2
  AllocatedStorage: 5
  MasterUsername: testUser
  MasterUserPassword:
    Fn::Sub: '{resolve:secretsmanager:${DBInstanceSecret}::password}'
  DeletionPolicy: Delete
[CT.RDS.PR.23] Require an Amazon RDS database instance to not be publicly accessible

This rule checks whether Amazon Relational Database Service (RDS) database (DB) instances are publicly accessible, as determined by checking the PubliclyAccessible configuration property.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.23 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.23 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.23 example templates](#)

**Explanation**

The PubliclyAccessible property in the RDS instance CloudFormation resource indicates whether the DB instance is publicly accessible. When the DB instance is configured with PubliclyAccessible set to true, it is an internet-facing instance with a publicly resolvable DNS name, which resolves to a public IP address. When the DB instance isn't publicly accessible, it is an internal instance with a DNS name that resolves to a private IP address.

Unless you intend for your RDS instance to be publicly accessible, do not configure the RDS instance with the PubliclyAccessible value set to true, because this configuration may allow unwanted traffic to your database instance.

**Remediation for rule failure**

Set the value of PubliclyAccessible to false.

The examples that follow show how to implement this remediation.
Amazon RDS DB Instance - Example

Amazon RDS DB instance configured as an internal instance, by means of a publicly accessible configuration. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "DBInstance": {
      "Type": "AWS::RDS::DBInstance",
      "Properties": {
         "Engine": "postgres",
         "EngineVersion": 14.2,
         "DBInstanceClass": "db.m5.large",
         "StorageType": "gp2",
         "AllocatedStorage": 5,
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
         },
         "PubliclyAccessible": false
      },
      "DeletionPolicy": "Delete"
   }
}
```

**YAML example**

```yaml
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
```

Proactive controls
PubliclyAccessible: false
DeletionPolicy: Delete

CT.RDS.PR.23 rule specification

# #########################################################################
##       Rule Specification        #
#########################################################################
#
# Rule Identifier:
#   rds_instance_public_access_check
#
# Description:
#   This rule checks whether Amazon Relational Database Service (RDS) database (DB) instances are publicly accessible, as determined by checking the 'PubliclyAccessible' configuration property.
#
# Reports on:
#   AWS::RDS::DBInstance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#      Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#      And: The input document does not contain any RDS DB instance resources
#      Then: SKIP
#   Scenario: 2
#      Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#      And: The input document contains an RDS DB instance resource
#      And: 'PubliclyAccessible' has not been specified
#      Then: FAIL
#   Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'PubliclyAccessible' is present and is a value other than bool(false)
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB instance resource
# And: 'PubliclyAccessible' has been specified and set to bool(false)
# Then: PASS

# Constants
#
let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
#
# Assignments
#
let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]
#
# Primary Rules
#
rule rds_instance_public_access_check when is_cfn_template(%INPUT_DOCUMENT)
    %rds_db_instances not empty {
        check(%rds_db_instances.Properties)
        <<
        [CT.RDS.PR.23]: Require an Amazon RDS database instance to not be publicly accessible
        [FIX]: Set the value of 'PubliclyAccessible' to 'false'.
        >>
    }

rule rds_instance_public_access_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
    <<
    [CT.RDS.PR.23]: Require an Amazon RDS database instance to not be publicly accessible
    [FIX]: Set the value of 'PubliclyAccessible' to 'false'.
    >>

Parameterized Rules

# Scenario: 2
PubliclyAccessible exists

# Scenario: 3 and 4
PubliclyAccessible == false

Utility Rules

# Predefined Utility Rules

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.RDS.PR.23 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
- DBInstanceSecret:
  - Type: AWS::SecretsManager::Secret
  - Properties:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB instance secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasteruser"}'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: '@/\'

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    PubliclyAccessible: false
    DeletionPolicy: Delete
[CT.RDS.PR.24] Require an Amazon RDS database instance to have encryption at rest configured

This control checks whether storage encryption is enabled for your Amazon RDS database (DB) instance.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.24 rule specification](#)

### Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.24 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.24 example templates](#)

### Explanation

For an added layer of security for your sensitive data in Amazon RDS DB instances, you should configure your RDS DB instances to be encrypted at rest. To encrypt your RDS DB instances and snapshots at rest, enable the encryption option for your RDS DB instances. Data that is encrypted at rest includes the underlying storage for DB instances, its automated backups, read replicas, and snapshots.

Encrypted Amazon RDS DB instances use the open standard AES-256 encryption algorithm to encrypt your data on the server that hosts your RDS DB instances. After your data is encrypted,
Amazon RDS handles authentication of access and decryption of your data transparently with a minimal impact on performance. You do not need to modify your database client applications to use encryption.

Amazon RDS encryption currently is available for all database engines and storage types. Amazon RDS encryption is available for most DB instance classes.

**Usage considerations**

- This control applies only to Amazon RDS DB engine types mariadb, mysql, oracle-ee, oracle-ee-cdb, oracle-se2, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, sqlserver-ex and sqlserver-web

**Remediation for rule failure**

The parameter `StorageEncrypted` must be set to true for RDS DB Instances.

The examples that follow show how to implement this remediation.

**Amazon RDS DB instance - Example**

Amazon RDS DB instance with storage encryption enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "RDSDBInstance": {
        "Type": "AWS::RDS::DBInstance",
        "Properties": {
            "Engine": "postgres",
            "EngineVersion": 14.2,
            "DBInstanceClass": "db.m5.large",
            "StorageType": "gp2",
            "AllocatedStorage": 5,
            "MasterUsername": {
                "Fn::Sub": "{[resolve:secretsmanager: ${RDSDBInstanceSecret}::username]"
            },
            "MasterUserPassword": {
```
"Fn::Sub": "{{resolve:secretsmanager:${RDSDBInstanceSecret}::password}}",
    "StorageEncrypted": true
}
}

YAML example

RDSDBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{resolve:secretsmanager:${RDSDBInstanceSecret}::username}'
    MasterUserPassword: !Sub '{resolve:secretsmanager:${RDSDBInstanceSecret}::password}'
    StorageEncrypted: true

CT.RDS.PR.24 rule specification

# ##############################################################################
#                             Rule Specification                             #
# ##############################################################################
#
# Rule Identifier:            #
#  rds_instance_storage_encrypted_check
#
# Description:                #
#  Checks whether storage encryption is enabled for your Amazon RDS DB instances.
#
# Reports on:                 #
#  AWS::RDS::DBInstance
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document does not contain any RDS DB instance resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is not one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
#          'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
#          'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
#     And: 'StorageEncrypted' has not been provided
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an RDS DB instance resource
#     And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2',
#          'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-ex', 'sqlserver-web'
#     And: 'StorageEncrypted' has been provided and set to bool(false)
#     Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains an RDS DB instance resource
And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb',
     'oracle-se2',
     'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-
ex', 'sqlserver-web'
And: 'StorageEncrypted' has been provided and set to bool(true)
Then: PASS

Constants

let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let INPUT_DOCUMENT = this
let SUPPORTED_RDS_INSTANCE_ENGINES = [
    "mariadb", "mysql", "oracle-ee", "oracle-ee-cdb", "oracle-se2",
    "oracle-se2-cdb", "postgres", "sqlserver-ee", "sqlserver-se",
    "sqlserver-ex", "sqlserver-web"
]

Assignments

let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

Primary Rules

rule rds_instance_storage_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
    %rds_db_instances not empty {
        check(%rds_db_instances.Properties)
        <<
        [CT.RDS.PR.24]: Require an Amazon RDS database instance to have encryption at
        rest configured
        [FIX]: The parameter 'StorageEncrypted' must be set to true for RDS DB
        Instances.
        >>
    }

rule rds_instance_storage_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
    <<
    [CT.RDS.PR.24]: Require an Amazon RDS database instance to have encryption at
    rest configured

Proactive controls
[FIX]: The parameter 'StorageEncrypted' must be set to true for RDS DB Instances.

```plaintext
rule check(rds_db_instance) {
    %rds_db_instance [filter_restore_and_engine(this)] {
        #Scenario: 3
        StorageEncrypted exists
        #Scenario: 4 and 5
        StorageEncrypted == true
    }
}
```

```plaintext
rule filter_restore_and_engine(db_properties) {
    %db_properties {
        #Scenario: 2
        Engine exists
        Engine is_string
        Engine in %SUPPORTED_RDS_INSTANCE_ENGINES
    }
}
```

```plaintext
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
```

```plaintext
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```
You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS instance secret
    GenerateSecretString:
      SecretStringTemplate: '{{"username": "exampleuser"}}'
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: "/@""

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    StorageEncrypted: true
    DeletionPolicy: Delete

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
Description: RDS instance secret
GenerateSecretString:
  SecretStringTemplate: '{"username": "exampleuser"}'
  GenerateStringKey: password
  PasswordLength: 22
  ExcludeCharacters: "/@"

DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername:
      Fn::Sub: '{\{resolve:secretsmanager:${DBInstanceSecret}::username\}}'
    MasterUserPassword:
      Fn::Sub: '{\{resolve:secretsmanager:${DBInstanceSecret}::password\}}'
    StorageEncrypted: false
    DeletionPolicy: Delete

[CT.RDS.PR.25] Require an Amazon RDS database cluster to export logs to Amazon CloudWatch Logs by means of the EnableCloudWatchLogsExports property

This control checks whether Amazon RDS database clusters have all available log types enabled for export to Amazon CloudWatch Logs.

- **Control objective**: Establish logging and monitoring
- **Implementation**: AWS CloudFormation guard rule
- **Control behavior**: Proactive
- **Resource types**: AWS::RDS::DBCluster
- **AWS CloudFormation guard rule**: [CT.RDS.PR.25 rule specification]

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.25 rule specification]
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.RDS.PR.25 example templates](#)

**Explanation**

AWS Control Tower recommends that you enable the export of relevant logs for all Amazon RDS database clusters to Amazon CloudWatch Logs. Database logging provides detailed records of requests made to RDS. Database logs can assist with security and access audits, and they can help you diagnose availability issues.

**Usage considerations**

- This control applies only to Amazon RDS DB cluster engine types aurora, aurora-mysql, aurora-postgresql, mysql and postgres.
- Additional prerequisites may exist for enabling logging based on your selected database engine type. Refer to [Monitoring Amazon Aurora log files](#) in the [Amazon Aurora User Guide](#) for more information.

**Remediation for rule failure**

Specify `EnableCloudwatchLogsExports` with a list of all supported log types for the Amazon RDS database cluster engine.

The examples that follow show how to implement this remediation.

**Amazon RDS database (DB) Cluster - Example One**

Amazon RDS Aurora DB cluster configured with all available log types enabled for export to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "DBCluster": {
        "Type": "AWS::RDS::DBCluster",
        "Properties": {
            "Engine": "aurora",
            "MasterUsername": {
```
YAML example

```
DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBClusterSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBClusterSecret}::password}}'
    DBSubnetGroupName: !Ref 'DBSubnetGroup'
    EnableCloudwatchLogsExports:
      - audit
      - error
      - general
      - slowquery
```

The examples that follow show how to implement this remediation.

**Amazon RDS DB Cluster - Example Two**

Amazon RDS Multi-AZ Postgres DB cluster configured with all available log types enabled for export to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.
### JSON example

```
{
    "DBCluster": {
        "Type": "AWS::RDS::DBCluster",
        "Properties": {
            "Engine": "aurora",
            "MasterUsername": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::username}}"
            },
            "MasterUserPassword": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::password}}"
            },
            "DBSubnetGroupName": {
                "Ref": "DBSubnetGroup"
            },
            "EnableCloudwatchLogsExports": [
                "audit",
                "error",
                "general",
                "slowquery"
            ]
        }
    }
}
```

### YAML example

```
DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: aurora
    MasterUsername: !Sub '{{$resolve:secretsmanager:${DBClusterSecret}::username}}'
    MasterUserPassword: !Sub '{{$resolve:secretsmanager:${DBClusterSecret}::password}}'
    DBSubnetGroupName: !Ref 'DBSubnetGroup'
    EnableCloudwatchLogsExports:
      - audit
      - error
      - general
      - slowquery
```
CT.RDS.PR.25 rule specification

```
# ###################################################################
##       Rule Specification        ##
###################################################################
#
# Rule Identifier:
#   rds_cluster_logging_enabled_check
#
# Description:
#   This control checks whether Amazon RDS database clusters have all available log
types enabled for export to Amazon CloudWatch Logs.
#
# Reports on:
#   AWS::RDS::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any RDS DB cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an RDS DB cluster Resource
#     And: 'Engine' is not one of 'aurora', 'aurora-mysql', 'aurora-postgresql',
#          'mysql' or 'postgres'
#     Then: SKIP
#   Scenario: 3
#     Given: The input document contains an RDS DB cluster resource
```

Proactive controls  2027
# And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql', 'mysql' or 'postgres'
# And: 'EnableCloudwatchLogsExports' has not been specified or has been specified as an empty list
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB cluster resource
# And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql', 'mysql' or 'postgres'
# And: 'EnableCloudwatchLogsExports' has been specified and is a non-empty list
# And: One or more log types in 'EnableCloudwatchLogsExports' are not supported by the specified 'Engine'
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB cluster resource
# And: 'Engine' is one of 'aurora', 'aurora-mysql', 'aurora-postgresql', 'mysql' or 'postgres'
# And: 'EnableCloudwatchLogsExports' has been specified and is a non-empty list
# And: 'EnableCloudwatchLogsExports' does not contain all log types supported by the specified 'Engine'
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB cluster resource
# And: 'Engine' is one of 'aurora', 'aurora-mysql' or 'mysql'
# And: 'EnableCloudwatchLogsExports' has been specified as a list with all supported log types
# for the 'Engine' ('audit', 'error', 'general' and 'slowquery')
# Then: PASS
# Scenario: 7
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an RDS DB cluster resource
# And: 'Engine' is 'aurora-postgresql'
# And: 'EnableCloudwatchLogsExports' has been specified as a list with all supported log types
# for the 'Engine' ('postgresql')
# Then: PASS
# Scenario: 8
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#    And: The input document contains an RDS DB cluster resource
#    And: 'Engine' is 'postgres'
#    And: 'EnableCloudwatchLogsExports' has been specified as a list with all supported log types
#          for the 'Engine' ('postgresql', 'upgrade')
#    Then: PASS

# # Constants
# #
let RDS_DB_CLUSTER_TYPE = "AWS::RDS::DBCluster"
let INPUT_DOCUMENT = this

let SUPPORTED_RDS_CLUSTER_ENGINES = [
    "aurora", "aurora-mysql", "aurora-postgresql", "mysql", "postgres"
]

let MYSQL_ENGINE_SUBTYPES = [ "aurora", "aurora-mysql", "mysql" ]
let AURORA_POSTGRES_ENGINE_SUBTYPES = [ "aurora-postgresql" ]
let POSTGRES_ENGINE_SUBTYPES = [ "postgres" ]

let MYSQL_SUPPORTED_LOG_TYPES = [ "audit", "error", "general", "slowquery" ]
let AURORA_POSTGRES_SUPPORTED_LOG_TYPES  = [ "postgresql" ]
let POSTGRES_SUPPORTED_LOG_TYPES = [ "postgresql", "upgrade" ]

#
# Assignments
#
let rds_db_clusters = Resources.*[ Type == %RDS_DB_CLUSTER_TYPE ]

#
# Primary Rules
#
rule rds_cluster_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%rds_db_clusters not empty {
    check(%rds_db_clusters.Properties)
    =>
        [CT.RDS.PR.25]: Require an Amazon RDS database cluster to have logging configured
        [FIX]: Specify 'EnableCloudwatchLogsExports' with a list of all supported log types for the Amazon RDS database cluster engine.
    }
rule rds_cluster_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_DB_CLUSTER_TYPE.resourceProperties)
  <=
    [CT.RDS.PR.25]: Require an Amazon RDS database cluster to have logging configured
    [FIX]: Specify 'EnableCloudwatchLogsExports' with a list of all supported log types for the Amazon RDS database cluster engine.
  >>
}

# Parameterized Rules
#
rule check(rds_db_cluster) {
  %rds_db_cluster [filter_engine(this)] {
    # Scenario 3
    EnableCloudwatchLogsExports exists
    check_is_list_and_not_empty(EnableCloudwatchLogsExports)

    # Scenario 4 and 6
    when Engine IN %MYSQL_ENGINE_SUBTYPES {
      %MYSQL_SUPPORTED_LOG_TYPES.* IN EnableCloudwatchLogsExports[*]
      EnableCloudwatchLogsExports.* IN %MYSQL_SUPPORTED_LOG_TYPES[*]
    }
}

# Scenario 4 and 7
when Engine IN %AURORA_POSTGRES_ENGINE_SUBTYPES {
  %AURORA_POSTGRES_SUPPORTED_LOG_TYPES.* IN EnableCloudwatchLogsExports[*]
  EnableCloudwatchLogsExports.* IN %AURORA_POSTGRES_SUPPORTED_LOG_TYPES[*]
}

# Scenario 4 and 8
when Engine IN %POSTGRES_ENGINE_SUBTYPES {
  %POSTGRES_SUPPORTED_LOG_TYPES.* in EnableCloudwatchLogsExports[*]
  EnableCloudwatchLogsExports.* IN %POSTGRES_SUPPORTED_LOG_TYPES[*]
}
}
CT.RDS.PR.25 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    MasterUsername: exampleusername
MasterUserPassword: example-password
DBSubnetGroupName: example-db-subnet-group
Engine: aurora
EnableCloudwatchLogsExports:
  - audit
  - error
  - general
  - slowquery

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  DBCluster:
    Type: AWS::RDS::DBCluster
    Properties:
      DBClusterInstanceClass: db.m6gd.large
      MasterUsername: exampleusername
      MasterUserPassword: example-password
      DBSubnetGroupName: example-db-subnet-group
      Engine: postgres
      AllocatedStorage: 100
      StorageType: io1
      Iops: 3000
      EnableCloudwatchLogsExports:
        - postgresql
        - upgrade

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  DBCluster:
    Type: AWS::RDS::DBCluster
    Properties:
      MasterUsername: exampleusername
      MasterUserPassword: example-password
      DBSubnetGroupName: example-db-subnet-group
[CT.RDS.PR.26] Require an Amazon Relational Database Service DB Proxy to require Transport Layer Security (TLS) connections

This control checks whether an Amazon Relational Database Service DB Proxy is configured to require Transport Layer Security (TLS) for connections to the proxy.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBProxy
- **AWS CloudFormation guard rule:** [CT.RDS.PR.26 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.26 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.RDS.PR.26 example templates](#)

**Explanation**

Amazon RDS Proxy can act as an additional layer of security between client applications and the underlying database. For example, you can connect to the proxy using TLS 1.2, even if the underlying DB instance supports an older version of TLS. You can connect to the proxy using an IAM role, even if the proxy connects to the database with the native user and password authentication method. With this technique, you can enforce strong authentication requirements for database applications without a costly migration effort for the DB instances themselves.

**Usage considerations**

- For general information about Amazon RDS proxy limitations, see [Quotas and limitations for RDS Proxy](#) in the *Amazon Relational Database Service User Guide*. 

Proactive controls
Remediation for rule failure

Set the value of the RequireTLS property to true.

The examples that follow show how to implement this remediation.

Amazon RDS DB Proxy - Example

An Amazon RDS DB Proxy configured to require TLS connections to the proxy. The example is shown in JSON and in YAML.

JSON example

```json
{
   "DBProxy": {
      "Type": "AWS::RDS::DBProxy",
      "Properties": {
         "DBProxyName": "sample-db-proxy",
         "EngineFamily": "MYSQL",
         "IdleClientTimeout": 120,
         "RoleArn": {
            "Fn::GetAtt": "ProxySecretAccessRole.Arn"
         },
         "Auth": [
            {
               "AuthScheme": "SECRETS",
               "SecretArn": {
                  "Ref": "DBInstanceSecret"
               },
               "IAMAuth": "DISABLED"
            }
         ],
         "VpcSubnetIds": [
            {
               "Ref": "SubnetOne"
            },
            {
               "Ref": "SubnetTwo"
            }
         ],
         "RequireTLS": true
      }
   }
}
```
YAML example

DBProxy:
  Type: AWS::RDS::DBProxy
  Properties:
    DBProxyName: sample-db-proxy
    EngineFamily: MYSQL
    IdleClientTimeout: 120
    RoleArn: !GetAtt 'ProxySecretAccessRole.Arn'
    Auth:
      - AuthScheme: SECRETS
        SecretArn: !Ref 'DBInstanceSecret'
        IAMAuth: DISABLED
    VpcSubnetIds:
      - !Ref 'SubnetOne'
      - !Ref 'SubnetTwo'
  RequireTLS: true

CT.RDS.PR.26 rule specification

# ################################################################################
##    Rule Specification    ##
# ################################################################################
#
# Rule Identifier:
#  rds_proxy_tls_check
#
# Description:
#  This control checks whether an Amazon RDS DB Proxy is configured to require
#  Transport Layer Security (TLS) for connections to the proxy.
#
# Reports on:
#  AWS::RDS::DBProxy
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
# Rule Parameters:
# None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document does not contain any Amazon RDS DB proxy resources
#        Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document contains an Amazon RDS DB proxy resource
#        And: 'RequireTLS' has not been provided
#        Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document contains an Amazon RDS DB proxy resource
#        And: 'RequireTLS' has been provided and set to a value other than bool(true)
#        Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document contains an Amazon RDS DB proxy resource
#        And: 'RequireTLS' has been provided and set to bool(true)
#        Then: PASS
#
# Constants
#
let INPUT_DOCUMENT = this
let RDS_DB_PROXY_TYPE = "AWS::RDS::DBProxy"
#
# Assignments
#
let rds_db_proxies = Resources.*[ Type == %RDS_DB_PROXY_TYPE ]
#
# Primary Rules
#
rule rds_proxy_tls_check when is_cfn_template(%INPUT_DOCUMENT)
%rds_db_proxies not empty {
  check(%rds_db_proxies.Properties)
  <<
    [CT.RDS.PR.26]: Require an Amazon RDS DB Proxy to require Transport Layer Security (TLS) connections
    [FIX]: Set the value of the RequireTLS property to true.
  >>
}

rule rds_proxy_tls_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_PROXY_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_DB_PROXY_TYPE.resourceProperties)
  <<
    [CT.RDS.PR.26]: Require an Amazon RDS DB Proxy to require Transport Layer Security (TLS) connections
    [FIX]: Set the value of the RequireTLS property to true.
  >>
}

# Parameterized Rules
#
rule check(rds_db_proxy) {
  %rds_db_proxy {
    # Scenarios 2
    RequireTLS exists
    # Scenarios 3 and 4
    RequireTLS == true
  }
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.RDS.PR.26 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''

DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB instance secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasteruser"}'
    GenerateStringKey: password
PasswordLength: 22
ExcludeCharacters: '@/
ProxySecretAccessRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service: rds.amazonaws.com
          Action: sts:AssumeRole
    Policies:
      - PolicyName: SecretAccessPolicy
        PolicyDocument:
          Version: '2012-10-17'
          Statement:
            - Effect: Allow
              Action:
                - secretsmanager:GetSecretValue
              Resource:
                Ref: DBInstanceSecret
            - Effect: Allow
              Action:
                - kms:Decrypt
              Resource:
                Fn::Sub: arn:${AWS::Partition}:kms:${AWS::Region}:${AWS::AccountId}:key/*
              Condition:
                StringEquals:
                  kms:ViaService:
                    Fn::Sub: secretsmanager.${AWS::Region}.amazonaws.com
                ForAnyValue: StringEquals:
                  kms:ResourceAliases: alias/aws/secretsmanager
DBProxy:
  Type: AWS::RDS::DBProxy
  Properties:
    DBProxyName:
      Fn::Sub: ${AWS::StackName}-example
    EngineFamily: MYSQL
    IdleClientTimeout: 120
    RoleArn:
      Fn::GetAtt: ProxySecretAccessRole.Arn
  Auth:
    - AuthScheme: SECRETS
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

SubnetOne:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SubnetTwo:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.1.0/24
    AvailabilityZone:
      Fn::Select:
        - 1
        - Fn::GetAZs: ''

DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    SecretArn:
      Ref: DBInstanceSecret
    IAMAuth: DISABLED
    VpcSubnetIds:
      - Ref: SubnetOne
      - Ref: SubnetTwo
    RequireTLS: true
Properties:
  Description: RDS DB instance secret
  GenerateSecretString:
    SecretStringTemplate: '{"username": "examplemasteruser"}'
    GenerateStringKey: password
    PasswordLength: 22
    ExcludeCharacters: '"@/\'
ProxySecretAccessRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service: rds.amazonaws.com
          Action: sts:AssumeRole
        Policies:
          - PolicyName: SecretAccessPolicy
            PolicyDocument:
              Version: '2012-10-17'
              Statement:
                - Effect: Allow
                  Action:
                    - secretsmanager:GetSecretValue
                  Resource:
                    Ref: DBInstanceSecret
                - Effect: Allow
                  Action:
                    - kms:Decrypt
                  Resource:
                    Fn::Sub: arn:${AWS::Partition}:kms:${AWS::Region}:${AWS::AccountId}:key/*
                  Condition:
                    StringEquals:
                      kms:ViaService:
                        Fn::Sub: secretsmanager.${AWS::Region}.amazonaws.com
                    ForAnyValue:StringEquals:
                      kms:ResourceAliases: alias/aws/secretsmanager
DBProxy:
  Type: AWS::RDS::DBProxy
  Properties:
    DBProxyName:
      Fn::Sub: ${AWS::StackName}-example
    EngineFamily: MYSQL
Proactive controls
[CT.RDS.PR.27] Require an Amazon Relational Database Service DB cluster parameter group to require Transport Layer Security (TLS) connections for supported engine types

This control checks whether an Amazon Relational Database Service DB cluster parameter group requires Transport Layer Security (TLS) connections for supported engine types.

• **Control objective:** Encrypt data in transit
• **Implementation:** AWS CloudFormation guard rule
• **Control behavior:** Proactive
• **Resource types:** AWS::RDS::DBClusterParameterGroup
• **AWS CloudFormation guard rule:** [CT.RDS.PR.27 rule specification](#)

**Details and examples**

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.27 rule specification](#)
• For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.RDS.PR.27 example templates](#)

**Explanation**

You can use Secure Socket Layer (SSL) or Transport Layer Security (TLS) from your application to encrypt a connection to a DB cluster running Aurora MySQL, Aurora PostgreSQL, MySQL,
or PostgreSQL. SSL/TLS connections provide a layer of security by encrypting data that moves between your client and DB cluster.

### Usage considerations

- This control applies only to Amazon RDS DB cluster parameter groups with families `aurora-mysql`, `aurora-postgresql`, `postgres`, or `mysql`.

### Remediation for rule failure

For Amazon RDS DB cluster parameter groups with `aurora-mysql` and `mysql` families, in the Parameters property, set the value of `require_secure_transport` to `true`. For Amazon RDS DB cluster parameter groups with `aurora-postgresql` and `postgres` families, in the Parameters property, set the value of `rds.force_ssl` to `true`.

The examples that follow show how to implement this remediation.

**Amazon RDS DB Cluster Parameter Group - Example One**

An Amazon RDS DB cluster parameter group configured to require TLS/SSL for all connections to Aurora MySQL DB clusters. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "RDSDBClusterParameterGroup": {
        "Type": "AWS::RDS::DBClusterParameterGroup",
        "Properties": {
            "Description": "sample-db-parameter-group",
            "Family": "aurora-mysql5.7",
            "Parameters": {
                "require_secure_transport": "ON"
            }
        }
    }
}
```

**YAML example**

```yaml
Proactive controls
```
RDSDBClusterParameterGroup:
  Type: AWS::RDS::DBClusterParameterGroup
  Properties:
    Description: sample-db-parameter-group
    Family: aurora-mysql5.7
    Parameters:
      require_secure_transport: 'ON'

The examples that follow show how to implement this remediation.

Amazon RDS DB Cluster Parameter Group - Example Two

An Amazon RDS DB cluster parameter group configured to require TLS/SSL for all connections to PostgreSQL DB clusters. The example is shown in JSON and in YAML.

JSON example

```
{
  "RDSDBClusterParameterGroup": {
    "Type": "AWS::RDS::DBClusterParameterGroup",
    "Properties": {
      "Description": "sample-db-parameter-group",
      "Family": "postgres14",
      "Parameters": {
        "rds.force_ssl": true
      }
    }
  }
}
```

YAML example

```
RDSDBClusterParameterGroup:
  Type: AWS::RDS::DBClusterParameterGroup
  Properties:
    Description: sample-db-parameter-group
```
Family: postgres14
Parameters:
  rds.force_ssl: true

CT.RDS.PR.27 rule specification

# #####################################################################
##       Rule Specification        ##
#####################################################################
#
# Rule Identifier:
#   rds_db_cluster_parameter_group_tls_check
#
# Description:
#   This control checks whether an Amazon RDS DB cluster parameter group requires
#   Transport Layer Security (TLS) connections for supported engine types.
#
# Reports on:
#   AWS::RDS::DBClusterParameterGroup
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
#     And: The input document does not contain any Amazon RDS DB cluster parameter
#     group resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
#     document
#     And: The input document contains an Amazon RDS DB cluster parameter group
#     resource
#     And: 'Family' has not been provided or has been provided and set to an RDS DB
#     cluster
parameter group family other than 'aurora-mysql', 'aurora-postgresql', 'postgres',
or 'mysql' families
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon RDS DB cluster parameter group
resource
# And: 'Family' has been provided and set to an 'aurora-mysql' Amazon RDS DB
cluster parameter
# group family
# And: In 'Parameters', 'require_secure_transport' has not been provided, or
# has been provided and set to a value other than 'ON'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon RDS DB cluster parameter group
resource
# And: 'Family' has been provided and set to a 'mysql' Amazon RDS DB cluster
parameter
# group family
# And: In 'Parameters', 'require_secure_transport' has not been provided, or
# has been provided and set to a value other than a boolean true value
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon RDS DB cluster parameter group
resource
# And: 'Family' has been provided and set to an 'aurora-postgresql' or 'postgres'
Amazon RDS DB cluster parameter group family
# And: In 'Parameters', 'rds.force_ssl' has not been provided, or has been
provided
# and set to a value other than a boolean true value
# Then: FAIL
# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon RDS DB cluster parameter group
resource
# And: 'Family' has been provided and set to an 'aurora-mysql' RDS DB cluster
parameter
# Scenario: 7
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon RDS DB cluster parameter group resource
And: 'Family' has been provided and set to a 'mysql' Amazon RDS DB cluster parameter group family
And: In 'Parameters', 'require_secure_transport' has been provided and set to a boolean true value
Then: PASS

# Scenario: 8
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon RDS DB cluster parameter group resource
And: 'Family' has been provided and set to an 'aurora-postgresql' or 'postgres' RDS DB cluster parameter group family
And: In 'Parameters', 'rds.force_ssl' has been provided and set to a boolean true value
Then: PASS

# Constants
let INPUT_DOCUMENT = this
let RDS_DB_CLUSTER_PARAMETER_GROUP_TYPE = "AWS::RDS::DBClusterParameterGroup"

let AURORA_MYSQL_PG_FAMILY = /^aurora-mysql$/
let AURORA_POSTGRES_PG_FAMILY = /^aurora-postgresql$/
let MYSQL_PG_FAMILY = /^mysql$/
let POSTGRES_PG_FAMILY = /^postgres$/

let BOOLEAN_TRUE_VALUES = [
  true,
  1, "1",
  "true", "True", "TRUE",
  "on", "On", "ON"
]
let AURORA_MSQL_ON_PATTERN = /(?i)^on$/
# Assignments

let rds_db_cluster_parameter_groups = Resources.*[ Type == %RDS_DB_CLUSTER_PARAMETER_GROUP_TYPE ]

# Primary Rules

rule rds_db_cluster_parameter_group_tls_check when is_cfn_template(%INPUT_DOCUMENT)
  %rds_db_cluster_parameter_groups not empty {
    check(%rds_db_cluster_parameter_groups.Properties)
    <<
      [CT.RDS.PR.27]: Require an Amazon RDS DB cluster parameter group to require Transport Layer Security (TLS) connections for supported engine types
      [FIX]: For RDS DB cluster parameter groups with 'aurora-mysql' and 'mysql' families, in the Parameters property, set the value of 'require_secure_transport' to true. For RDS DB cluster parameter groups with 'aurora-postgresql' and 'postgres' families, in the Parameters property, set the value of 'rds.force_ssl' to true.
    >>
  }

rule rds_db_cluster_parameter_group_tls_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_CLUSTER_PARAMETER_GROUP_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_DB_CLUSTER_PARAMETER_GROUP_TYPE.resourceProperties)
  <<
    [CT.RDS.PR.27]: Require an Amazon RDS DB cluster parameter group to require Transport Layer Security (TLS) connections for supported engine types
    [FIX]: For RDS DB cluster parameter groups with 'aurora-mysql' and 'mysql' families, in the Parameters property, set the value of 'require_secure_transport' to true. For Amazon RDS DB cluster parameter groups with 'aurora-postgresql' and 'postgres' families, in the Parameters property, set the value of 'rds.force_ssl' to true.
  >>
}

# Parameterized Rules

rule check(rds_parameter_group) {
  %rds_parameter_group [
    # Scenario 2
filter_pg_aurora_mysql_families(this) {
    # Scenarios 3 and 5
    Parameters exists
    Parameters is_struct
    Parameters {
        require_secure_transport exists
        require_secure_transport in %AURORA_MYSQL_ON_PATTERN
    }
}

%rds_parameter_group [ 
    # Scenario 2
    filter_pg_mysql_families(this)
] {
    # Scenarios 3 and 5
    Parameters exists
    Parameters is_struct
    Parameters {
        require_secure_transport exists
        require_secure_transport in %BOOLEAN_TRUE_VALUES
    }
}

%rds_parameter_group [ 
    # Scenario 2
    filter_pg_postgres_families(this)
] {
    # Scenarios 4 and 6
    Parameters exists
    Parameters is_struct
    Parameters {
        "rds.force_ssl" exists
        "rds.force_ssl" in %BOOLEAN_TRUE_VALUES
    }
}

rule filter_pg_aurora_mysql_families(parameter_group) {
    %parameter_group {
        Family exists
        Family in %AURORA_MYSQL_PG_FAMILY
    }
}
CT.RDS.PR.27 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.
PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
  RDSDBClusterParameterGroup:
    Type: AWS::RDS::DBClusterParameterGroup
    Properties:
      Description:
        Fn::Sub: ${AWS::StackName}-example
      Family: aurora-mysql5.7
      Parameters:
        require_secure_transport: 'ON'
```

PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
  RDSDBClusterParameterGroup:
    Type: AWS::RDS::DBClusterParameterGroup
    Properties:
      Description:
        Fn::Sub: ${AWS::StackName}-example
      Family: postgres14
      Parameters:
        rds.force_ssl: true
```

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

```
Resources:
  RDSDBClusterParameterGroup:
    Type: AWS::RDS::DBClusterParameterGroup
    Properties:
      Description:
        Fn::Sub: ${AWS::StackName}-example
      Family: aurora-mysql5.7
      Parameters:
```

Proactive controls
require_secure_transport: 'OFF'

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
RDSDBClusterParameterGroup:
  Type: AWS::RDS::DBClusterParameterGroup
Properties:
  Description:
    Fn::Sub: ${AWS::StackName}-example
  Family: mysql8.0
  Parameters:
    require_secure_transport: 0

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
RDSDBClusterParameterGroup:
  Type: AWS::RDS::DBClusterParameterGroup
Properties:
  Description:
    Fn::Sub: ${AWS::StackName}-example
  Family: postgres15
  Parameters:
    rds.force_ssl: false

[CT.RDS.PR.28] Require an Amazon Relational Database Service DB parameter group to require Transport Layer Security (TLS) connections for supported engine types

This control checks whether an Amazon Relational Database Service DB parameter group requires Transport Layer Security (TLS) connections, for supported engine types.
Control objective: Encrypt data in transit

Implementation: AWS CloudFormation guard rule

Control behavior: Proactive

Resource types: AWS::RDS::DBParameterGroup

AWS CloudFormation guard rule: CT.RDS.PR.28 rule specification

Details and examples

For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.RDS.PR.28 rule specification

For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: CT.RDS.PR.28 example templates

Explanation

You can use Secure Socket Layer (SSL) or Transport Layer Security (TLS) from your application to encrypt a connection to a DB instance running MariaDB, Microsoft SQL Server, MySQL, Oracle, or PostgreSQL. SSL/TLS connections provide a layer of security by encrypting data that moves between your client and DB instance.

Usage considerations

This control applies only to Amazon RDS DB parameter groups with families postgres, sqlserver, mariadb (excluding mariadb10.0 to mariadb10.4), and mysql (excluding mysql5.5 to mysql5.6)

Remediation for rule failure

For Amazon RDS DB instance parameter groups with mysql and mariadb families, in Parameters, set require_secure_transport to true. For Amazon RDS DB instance parameter groups with postgres and sqlserver families, in Parameters, set rds.force_ssl to true.

The examples that follow show how to implement this remediation.
Amazon RDS DB Parameter Group - Example One

An Amazon RDS DB parameter group configured to require TLS/SSL for all connections to MariaDB DB instances. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "RDSDBParameterGroup": {
        "Type": "AWS::RDS::DBParameterGroup",
        "Properties": {
            "Description": "sample-db-parameter-group",
            "Family": "mariadb10.6",
            "Parameters": {
                "require_secure_transport": true
            }
        }
    }
}
```

**YAML example**

```yaml
RDSDBParameterGroup:
  Type: AWS::RDS::DBParameterGroup
  Properties:
    Description: sample-db-parameter-group
    Family: mariadb10.6
    Parameters:
      require_secure_transport: true
```

The examples that follow show how to implement this remediation.

Amazon RDS DB Parameter Group - Example Two

An Amazon RDS DB parameter group configured to require TLS/SSL for all connections to PostgreSQL DB instances. The example is shown in JSON and in YAML.

**JSON example**
YAML example

```yaml
RDSDBParameterGroup:
  Type: AWS::RDS::DBParameterGroup
  Properties:
    Description: sample-db-parameter-group
    Family: postgres14
    Parameters:
      rds.force_ssl: true
```

CT.RDS.PR.28 rule specification

```plaintext
# ###################################
##       Rule Specification        ##
#####################################
#
# Rule Identifier:
#   rds_db_parameter_group_tls_check
#
# Description:
#   This control checks whether an Amazon RDS DB parameter group requires Transport Layer Security (TLS) connections, for supported engine types.
#```
# Reports on:
#   AWS::RDS::DBParameterGroup
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Amazon RDS DB parameter group resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon RDS DB parameter group resource
#     And: 'Family' has not been provided or has been provided and set to an Amazon
#          RDS DB parameter group family other than one with support for requiring TLS
#          connections
#     ('mariadb' - excluding mariadb families 10.0 to 10.4, 'mysql' - excluding
#      mysql families 5.5 to 5.6, 'postgres' or 'sqlserver')
#     Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon RDS DB parameter group resource
#     And: 'Family' has been provided and set to Amazon RDS parameter group families
#          'mariadb' (excluding families 10.0 to 10.4) or 'mysql' (excluding families 5.5 to
#          5.6)
#     And: In 'Parameters', 'require_secure_transport' has not been provided, or
#          has been provided and set to a value other than a boolean true value
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon RDS DB parameter group resource
And: 'Family' has been provided and set to Amazon RDS parameter group families 'sqlserver' or 'postgres'
And: In 'Parameters', 'rds.force_ssl' has not been provided, or has been provided
and set to a value other than a boolean true value
Then: FAIL

Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon RDS DB parameter group resource
And: 'Family' has been provided and set to Amazon RDS parameter group families 'mariadb'
(excluding families 10.0 to 10.4) or 'mysql' (excluding families 5.5 to 5.6)
And: In 'Parameters', 'require_secure_transport' has been provided and set to a boolean true value
Then: PASS

Scenario: 6
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon RDS DB parameter group resource
And: 'Family' has been provided and set to Amazon RDS parameter group families 'sqlserver' or 'postgres'
And: In 'Parameters', 'rds.force_ssl' has been provided and set to a boolean true value
Then: PASS

# Constants
let INPUT_DOCUMENT = this
let RDS_DB_PARAMETER_GROUP_TYPE = "AWS::RDS::DBParameterGroup"

let MYSQL_PG_FAMILY = /^mysql/  # Proactive controls
let MARIADB_PG_FAMILY = /^mariadb/
let POSTGRES_PG_FAMILY = /^postgres/
let SQLSERVER_PG_FAMILY = /^sqlserver/

let MYSQL_FAMILIES_WITH_NO_SECURE_TRANSPORT_SUPPORT = [
  "mysql5.5",
  "mysql5.6"
]
let MARIADB_FAMILIES_WITH_NO_SECURE_TRANSPORT_SUPPORT = [
  "mariadb10.0",
  "mariadb10.1"
]
"mariadb10.1",
"mariadb10.2",
"mariadb10.3",
"mariadb10.4"
]
let BOOLEAN_TRUE_VALUES = [
  true,
  1, "1",
  "true", "True", "TRUE",
  "on", "On", "ON"
]

# Assignments
#
let rds_db_parameter_groups = Resources.*[ Type == %RDS_DB_PARAMETER_GROUP_TYPE ]

# Primary Rules
#
rule rds_db_parameter_group_tls_check when is_cfn_template(%INPUT_DOCUMENT)
  %rds_db_parameter_groups not empty {
    check(%rds_db_parameter_groups.Properties)
    <<
      [CT.RDS.PR.28]: Require an Amazon RDS DB parameter group to require Transport Layer Security (TLS) connections for supported engine types
      [FIX]: For Amazon RDS DB instance parameter groups with 'mysql' and 'mariadb' families, in 'Parameters', set 'require_secure_transport' to 'true'. For Amazon RDS DB instance parameter groups with 'postgres' and 'sqlserver' families, in 'Parameters', set 'rds.force_ssl' to 'true'.
    >>
  }

rule rds_db_parameter_group_tls_check when is_cfn_hook(%INPUT_DOCUMENT,
  %RDS_DB_PARAMETER_GROUP_TYPE) {
  check(%INPUT_DOCUMENT.%RDS_DB_PARAMETER_GROUP_TYPE.resourceProperties)
  <<
    [CT.RDS.PR.28]: Require an Amazon RDS DB parameter group to require Transport Layer Security (TLS) connections for supported engine types
    [FIX]: For Amazon RDS DB instance parameter groups with 'mysql' and 'mariadb' families, in 'Parameters', set 'require_secure_transport' to 'true'. For Amazon RDS DB instance parameter groups with 'postgres' and 'sqlserver' families, in 'Parameters', set 'rds.force_ssl' to 'true'.
  >>
### Parameterized Rules

```python
# Scenario 2
filter_pg_mysql_maria_families(this)
#
# Scenarios 3 and 5
Parameters exists
Parameters is_struct
Parameters {
    require_secure_transport exists
    require_secure_transport in %BOOLEAN_TRUE_VALUES
}
```

```python
# Scenario 2
filter_pg_postgres_sqlserver_families(this)
#
# Scenarios 4 and 6
Parameters exists
Parameters is_struct
Parameters {
    "rds.force_ssl" exists
    "rds.force_ssl" in %BOOLEAN_TRUE_VALUES
}
```

```python
rule filter_pg_mysql_maria_families(parameter_group) {
    %parameter_group {
        Family exists
        filter_mysql_family(this) or
        filter_mariadb_family(this)
    }
}
```

```python
rule filter_mysql_family(parameter_group) {
    %parameter_group {
        Family in %MYSQL_PG_FAMILY
```

Proactive controls
Family not in %MYSQL_FAMILIES_WITH_NO_SECURE_TRANSPORT_SUPPORT
}
}

rule filter_mariadb_family(parameter_group) {
  %parameter_group {
    Family in %MARIADB_PG_FAMILY
    Family not in %MARIADB_FAMILIES_WITH_NO_SECURE_TRANSPORT_SUPPORT
  }
}

rule filter_pg_postgres_sqlserver_families(parameter_group) {
  %parameter_group {
    Family exists
    Family in %POSTGRES_PG_FAMILY or
    Family in %SQLSERVER_PG_FAMILY
  }
}

#
# Utility Rules
#
rule check_is_list_and_not_empty(value) {
  %value {
    this is_list
    this not empty
  }
}

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.RDS.PR.28 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  RDSDBParameterGroup:
    Type: AWS::RDS::DBParameterGroup
    Properties:
      Description:
        Fn::Sub: ${AWS::StackName}-example
      Family: mariadb10.6
      Parameters:
        require_secure_transport: true

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  RDSDBParameterGroup:
    Type: AWS::RDS::DBParameterGroup
    Properties:
      Description:
        Fn::Sub: ${AWS::StackName}-example
      Family: postgres14
      Parameters:
        rds.force_ssl: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  RDSDBParameterGroup:
    Type: AWS::RDS::DBParameterGroup
    Properties:

Description:
  Fn::Sub: ${AWS::StackName}-example
Family: mariadb10.6
Parameters:
  require_secure_transport: false

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
RDSDBParameterGroup:
  Type: AWS::RDS::DBParameterGroup
  Properties:
    Description:
      Fn::Sub: ${AWS::StackName}-example
    Family: postgres15
    Parameters:
      rds.force_ssl: false

[CT.RDS.PR.29] Require an Amazon RDS cluster not be configured to be publicly accessible by means of the 'PubliclyAccessible' property

This control checks whether an Amazon Relational Database Service database cluster is configured to be publicly accessible, or not, as determined by the setting of the PubliclyAccessible property.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBCluster
- **AWS CloudFormation guard rule:** [CT.RDS.PR.29 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.29 rule specification](#)
• For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.RDS.PR.29 example templates](#)

**Explanation**

The PubliclyAccessible property in the Amazon RDS DB cluster AWS CloudFormation resource indicates whether the DB cluster is publicly accessible. When the DB instance is configured with the PubliclyAccessible property set to true, its Domain Name System (DNS) endpoint resolves to the public IP address from outside of the DB cluster's virtual private cloud (VPC), and it also resolves to the private IP address from within the DB cluster's VPC.

Unless you intend for your Amazon RDS DB cluster to be publicly accessible, do not configure the Amazon RDS DB cluster with the PubliclyAccessible value set to true, because this configuration may allow unwanted traffic to your database instance.

**Remediation for rule failure**

Set the value of the PubliclyAccessible property to false.

The examples that follow show how to implement this remediation.

**Amazon RDS DB Cluster - Example**

An Amazon RDS Multi-AZ Postgres DB cluster configured not to be publicly accessible. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "DBCluster": {
        "Type": "AWS::RDS::DBCluster",
        "Properties": {
            "Engine": "postgres",
            "DBClusterInstanceClass": "db.m6gd.large",
            "MasterUsername": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::username}}"
            },
            "MasterUserPassword": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBClusterSecret}::password}}"
            },
            "DBSubnetGroupName": {
```

YAML example

```yaml
DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    Engine: postgres
    DBClusterInstanceClass: db.m6gd.large
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBClusterSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBClusterSecret}::password}}'
    DBSubnetGroupName: !Ref 'DBSubnetGroup'
    AllocatedStorage: 100
    StorageType: io1
    Iops: 3000
    PubliclyAccessible: false
```

CT.RDS.PR.29 rule specification

```text
# ###################################
##       Rule Specification        ##
#####################################
#
# Rule Identifier:
#   rds_cluster_public_access_check
#
# Description:
#   This control checks whether an Amazon RDS database cluster is configured to be
#   publicly accessible, or not, as determined by the setting of the PubliclyAccessible
#   property.
```
# Reports on:
#   AWS::RDS::DBCluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#        And: The input document does not contain any Amazon RDS DB cluster resources
#        Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#        And: The input document contains an Amazon RDS DB cluster resource
#        And: 'Engine' has been provided and set to a database engine type other than a
#             Multi-AZ database engine (type other than 'mysql' or 'postgres')
#        Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#        And: The input document contains an Amazon RDS DB cluster resource
#        And: 'Engine' has been provided and set to a Multi-AZ database engine
#               ('mysql', 'postgres')
#        And: 'PubliclyAccessible' has not been provided
#        Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#        And: The input document contains an Amazon RDS DB cluster resource
#        And: 'Engine' has been provided and set to a Multi-AZ database engine
#               ('mysql', 'postgres')
#        And: 'PubliclyAccessible' has been provided and set to a value other than
#               bool(false)
#        Then: FAIL
#   Scenario: 5
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#        And: The input document contains an Amazon RDS DB cluster resource
And: 'Engine' has been provided and set to a Multi-AZ database engine ('mysql', 'postgres')
And: 'PubliclyAccessible' has been provided and set to bool(false)
Then: PASS

# Constants

let INPUT_DOCUMENT = this
let RDS_DB_CLUSTER_TYPE = "AWS::RDS::DBCluster"
let MULTI_AZ_ENGINE_TYPES = [ "mysql", "postgres" ]

# Assignments

let rds_db_clusters = Resources.*[ Type == %RDS_DB_CLUSTER_TYPE ]

# Primary Rules

rule rds_cluster_public_access_check when is_cfn_template(%INPUT_DOCUMENT)
%rds_db_clusters not empty {
    check(%rds_db_clusters.Properties)
    <<
    [CT.RDS.PR.29]: Require an Amazon RDS cluster not be configured to be publicly accessible by means of the 'PubliclyAccessible' property
    [FIX]: Set the value of the PubliclyAccessible property to false.
    >>
}

rule rds_cluster_public_access_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_DB_CLUSTER_TYPE.resourceProperties)
    <<
    [CT.RDS.PR.29]: Require an Amazon RDS cluster not be configured to be publicly accessible by means of the 'PubliclyAccessible' property
    [FIX]: Set the value of the PubliclyAccessible property to false.
    >>
}

# Parameterized Rules

rule check(rds_db_cluster) {
Proactive controls
2066
%rds_db_cluster[
    filter_multi_az_engine(this)
] {
# Scenario 2
    PubliclyAccessible exists

# Scenarios 3 and 4
    PubliclyAccessible == false
}
}

rule filter_multi_az_engine(rds_db_cluster) {
    %rds_db_cluster {
        Engine exists
        Engine in %MULTI_AZ_ENGINE_TYPES
    }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.RDS.PR.29 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

DBClusterSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS DB cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "exampleuser"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: '"@/\'

DBCluster:
  Type: AWS::RDS::DBCluster
  Properties:
    DBClusterIdentifier: example-db-cluster
    DBClusterInstanceClass: db.m5d.large
    MasterUsername:
      Fn::Sub: "{{resolve:secretsmanager:${DBClusterSecret}::username}}"
    MasterUserPassword:
      Fn::Sub: "{{resolve:secretsmanager:${DBClusterSecret}::password}}"
    Engine: mysql
    AllocatedStorage: 100
    StorageType: io1
    Iops: 1000
    PubliclyAccessible: false
[CT.RDS.PR.30] Require that an Amazon RDS database instance has encryption at rest configured to use a KMS key that you specify for supported engine types

This control checks whether storage encryption is enabled for your Amazon RDS database (DB) instance, and that the encryption uses a KMS key that you specify for supported engine types.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::RDS::DBInstance
- **AWS CloudFormation guard rule:** [CT.RDS.PR.30 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.RDS.PR.30 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.RDS.PR.30 example templates](#)

**Explanation**

As an added layer of security for your sensitive data in Amazon RDS DB instances, you can configure your Amazon RDS DB instances to be encrypted at rest. To encrypt your Amazon RDS DB
instances and snapshots at rest, enable the encryption option for your Amazon RDS DB instances. Data that is encrypted at rest includes the underlying storage for DB instances, its automated backups, read replicas, and snapshots.

Amazon RDS-encrypted DB instances use the open standard AES-256 encryption algorithm to encrypt your data residing on the server that hosts your Amazon RDS DB instances. After your data is encrypted, Amazon RDS handles authentication of access and decryption of your data transparently, with a minimal impact on performance. You do not need to modify your database client applications to use encryption.

Amazon RDS encryption is available for all database engines and storage types. Amazon RDS encryption is available for most DB instance classes.

### Usage considerations

- This control applies only to Amazon RDS DB engine types mariadb, mysql, oracle-ee, oracle-ee-cdb, oracle-se2, oracle-se2-cdb, postgres, sqlserver-ee, sqlserver-se, and sqlserver-web
- This control requires that a KMS key is specified for Amazon RDS DB instance resources. It does not check the properties of the KMS key used, such as whether the KMS key is customer-managed or service-managed.
- Consider using a customer-managed key if you want full control over the KMS key, which includes establishing and maintaining the key's policies, IAM policies, and grants, as well as enabling and disabling the key, rotating its cryptographic material, adding tags, creating aliases that refer to the KMS key, and scheduling the KMS key for deletion.

### Remediation for rule failure

Set the KmsKeyId property to the ARN of an AWS KMS key that is configured to grant key usage permissions to Amazon RDS.

The examples that follow show how to implement this remediation.

#### Amazon RDS DB instance - Example

An Amazon RDS DB instance with storage encryption enabled. The example is shown in JSON and in YAML.
JSON example

```
{
    "RDSDBInstance": {
        "Type": "AWS::RDS::DBInstance",
        "Properties": {
            "Engine": "postgres",
            "EngineVersion": 14.2,
            "DBInstanceClass": "db.m5.large",
            "StorageType": "gp2",
            "AllocatedStorage": 5,
            "MasterUsername": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::username}}"
            },
            "MasterUserPassword": {
                "Fn::Sub": "{{resolve:secretsmanager:${DBInstanceSecret}::password}}"
            },
            "StorageEncrypted": true,
            "KmsKeyId": {
                "Ref": "KMSKey"
            }
        }
    }
}
```

YAML example

```
RDSDBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 14.2
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5
    MasterUsername: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${DBInstanceSecret}::password}}'
    StorageEncrypted: true
    KmsKeyId: !Ref 'KMSKey'
```
# CT.RDS.PR.30 rule specification

## Rule Specification

# Rule Identifier:
# rds_storage_encrypted_kms_key_check

# Description:
# This control checks whether storage encryption is enabled for your Amazon RDS database (DB) instance, and that the encryption uses a KMS key that you specify for supported engine types.

# Reports on:
# AWS::RDS::DBInstance

# Evaluates:
# AWS CloudFormation, AWS CloudFormation Hook

# Rule Parameters:
# None

# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any Amazon RDS DB instance resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Amazon RDS DB instance resource
# And: 'Engine' is not one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb', 'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se', 'sqlserver-web'
# Then: SKIP
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Amazon RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb',
#     'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se',
#     'sqlserver-web'
# And: 'KmsKeyId' has not been provided
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Amazon RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb',
#     'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se',
#     'sqlserver-web'
# And: 'KmsKeyId' has been provided as an empty string or invalid local reference
#     to a KMS key ID or alias or ARN
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Amazon RDS DB instance resource
# And: 'Engine' is one of 'mariadb', 'mysql', 'oracle-ee', 'oracle-ee-cdb',
#     'oracle-se2', 'oracle-se2-cdb', 'postgres', 'sqlserver-ee', 'sqlserver-se',
#     'sqlserver-web'
# And: 'KmsKeyId' has been provided as a non-empty string or valid local reference
#     to a KMS key ID or alias or ARN
# Then: PASS

# Constants

let INPUT_DOCUMENT = this
let RDS_DB_INSTANCE_TYPE = "AWS::RDS::DBInstance"
let SUPPORTED_RDS_INSTANCE_ENGINES = [
    "mariadb", "mysql", "oracle-ee", "oracle-ee-cdb", "oracle-se2",
    "oracle-se2-cdb", "postgres", "sqlserver-ee", "sqlserver-se",
    "sqlserver-web"
]
let rds_db_instances = Resources.*[ Type == %RDS_DB_INSTANCE_TYPE ]

rule rds_storage_encrypted_kms_key_check when is_cfn_template(%INPUT_DOCUMENT)
%rds_db_instances not empty {
    check(%rds_db_instances.Properties)
    <<
    [CT.RDS.PR.30]: Require that an Amazon RDS database instance has encryption at rest configured to use a KMS key that you specify for supported engine types
    [FIX]: Set the KmsKeyId property to the ARN of an AWS KMS key that is configured to grant key usage permissions to Amazon RDS.
    >>
}

rule rds_storage_encrypted_kms_key_check when is_cfn_hook(%INPUT_DOCUMENT, %RDS_DB_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%RDS_DB_INSTANCE_TYPE.resourceProperties)
    <<
    [CT.RDS.PR.30]: Require that an Amazon RDS database instance has encryption at rest configured to use a KMS key that you specify for supported engine types
    [FIX]: Set the KmsKeyId property to the ARN of an AWS KMS key that is configured to grant key usage permissions to Amazon RDS.
    >>
}

rule check(rds_db_instance) {
    %rds_db_instance [
        # Scenario 2
        filter_engine(this)
    ] {
        # Scenario 3
        KmsKeyId exists

        # Scenarios 4 and 5
        check_is_string_and_not_empty(KmsKeyId) or
        check_local_references(%INPUT_DOCUMENT, KmsKeyId, "AWS::KMS::Key") or
check_local_references(%INPUT_DOCUMENT, KmsKeyId, "AWS::KMS::Alias")
}
}

rule filter_engine(rds_db_instance) {
    %rds_db_instance {
        Engine exists
        Engine is_string
        Engine in %SUPPORTED_RDS_INSTANCE_ENGINES
    }
}

# Utility Rules
#
rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_local_references(doc, reference_properties, referenced_RESOURCE_TYPE) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_RESOURCE_TYPE)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_RESOURCE_TYPE)
            <<Local Stack reference was invalid>>
        }
    }
}

Proactive controls
rule query_for_resource(doc, resource_key, referenced_RESOURCE_TYPE) {
  let referenced_resource = %doc.Resources[ keys == %resource_key ]
  if referenced_resource not empty
    referenced_resource {
      Type == %referenced_RESOURCE_TYPE
    }
}

**CT.RDS.PR.30 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

**Resources:**

- **KMSKey:**
  - **Type:** AWS::KMS::Key
  - **Properties:**
    - **KeyPolicy:**
      - **Version:** 2012-10-17
      - **Id:** example-policy
      - **Statement:**
        - **Sid:** Enable IAM User Permissions
          - **Effect:** Allow
          - **Principal:**
            - **AWS:**
              - Fn::Sub: arn:${AWS::Partition}:iam::${AWS::AccountId}:root
            - **Action:** kms:*
            - **Resource:** '*'
            - **KeySpec:** SYMMETRIC_DEFAULT
            - **EnableKeyRotation:** true

- **DBInstanceSecret:**
  - **Type:** AWS::SecretsManager::Secret
  - **Properties:**
    - **Description:** RDS DB instance secret
    - **GenerateSecretString:**
      - **SecretStringTemplate:** '{"username": "examplemasteruser"}'
      - **GenerateStringKey:** password
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
DBInstanceSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: RDS instance secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "exampleuser"}
      GenerateStringKey: password
      PasswordLength: 22
      ExcludeCharacters: "/@"'
DBInstance:
  Type: AWS::RDS::DBInstance
  Properties:
    Engine: postgres
    EngineVersion: 15.4
    DBInstanceClass: db.m5.large
    StorageType: gp2
    AllocatedStorage: 5

Proactive controls
Amazon Redshift controls

Topics

- [CT.REDSHIFT.PR.1] Require an Amazon Redshift cluster to prohibit public access
- [CT.REDSHIFT.PR.2] Require an Amazon Redshift cluster to have automatic snapshots configured
- [CT.REDSHIFT.PR.3] Require an Amazon Redshift cluster to have audit logging configured
- [CT.REDSHIFT.PR.4] Require an Amazon Redshift cluster to have automatic upgrades to major versions configured
- [CT.REDSHIFT.PR.5] Require an Amazon Redshift cluster to have enhanced VPC routing
- [CT.REDSHIFT.PR.6] Require an Amazon Redshift cluster to have a unique administrator username
- [CT.REDSHIFT.PR.7] Require an Amazon Redshift cluster to have a unique database name
- [CT.REDSHIFT.PR.8] Require an Amazon Redshift cluster to be encrypted
- [CT.REDSHIFT.PR.9] Require that an Amazon Redshift cluster parameter group is configured to use Secure Sockets Layer (SSL) for encryption of data in transit

[CT.REDSHIFT.PR.1] Require an Amazon Redshift cluster to prohibit public access

This control checks whether Amazon Redshift clusters are configured to prohibit public access.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Redshift::Cluster
- **AWS CloudFormation guard rule:** [CT.REDSHIFT.PR.1 rule specification](#)

Details and examples
For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: 
CT.REDSHIFT.PR.1 rule specification

For examples of PASS and FAIL CloudFormation Templates related to this control, see: 
CT.REDSHIFT.PR.1 example templates

Explanation

The PubliclyAccessible attribute of the Amazon Redshift cluster configuration indicates whether the cluster is publicly accessible. When the cluster is configured with the PubliclyAccessible parameter set to true, it is an internet-facing instance that has a publicly resolvable DNS name, which resolves to a public IP address.

When the cluster is not publicly accessible, it is an internal instance with a DNS name that resolves to a private IP address. Unless you intend for your cluster to be publicly accessible, the cluster should not be configured with PubliclyAccessible set to true.

Remediation for rule failure

Set PubliclyAccessible to false.

The examples that follow show how to implement this remediation.

Amazon Redshift Cluster - Example

Amazon Redshift cluster configured to prohibit public access. The example is shown in JSON and in YAML.

JSON example

```json
{
    "RedshiftCluster": {
        "Type": "AWS::Redshift::Cluster",
        "Properties": {
            "ClusterType": "single-node",
            "DBName": "sampledb",
            "MasterUsername": {
                "Fn::Sub": "{{resolve:secretsmanager: ${RedshiftClusterSecret}::username}}"
            },
            "MasterUserPassword": {
```
YAML example

RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: sampledb
    MasterUsername: !Sub '{${resolve:secretsmanager: ${RedshiftClusterSecret}::username}}'
    MasterUserPassword: !Sub '{${resolve:secretsmanager: ${RedshiftClusterSecret}::password}}'
    NodeType: ds2.xlarge
    PubliclyAccessible: false

CT.REDSHIFT.PR.1 rule specification

```yaml
# # # # # # # # # # # # # # # # # # #
# Rule Specification
# # # # # # # # # # # # # # # # # # #

# Rule Identifier:
# redshift_cluster_public_access_check
#
# Description:
# This control checks whether Amazon Redshift clusters are configured to prohibit
# public access.
#
# Reports on:
# AWS::Redshift::Cluster
```
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document does not contain any Redshift cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains a Redshift cluster resource
#     And: 'PubliclyAccessible' has not been specified
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains a Redshift cluster resource
#     And: 'PubliclyAccessible' has been specified
#     And: 'PubliclyAccessible' has been set to bool(true)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation document or AWS CloudFormation hook document
#     And: The input document contains a Redshift cluster resource
#     And: 'PubliclyAccessible' has been specified
#     And: 'PubliclyAccessible' has been set to bool(false)
#     Then: PASS
#
# Constants
#
let REDSHIFT_CLUSTER_TYPE = "AWS::Redshift::Cluster"
let INPUT_DOCUMENT = this

#
# Assignments
#
let redshift_clusters = Resources.*[ Type == %REDSHIFT_CLUSTER_TYPE ]
# Primary Rules

rule redshift_cluster_public_access_check when is_cfn_template(%INPUT_DOCUMENT)
   %redshift_clusters not empty 
   check(%redshift_clusters.Properties)
   <<
   [CT.REDSHIFT.PR.1]: Require an Amazon Redshift cluster to prohibit public access
   [FIX]: Set 'PubliclyAccessible' to 'false'.
   >>
}

rule redshift_cluster_public_access_check when is_cfn_hook(%INPUT_DOCUMENT, %REDSHIFT_CLUSTER_TYPE) {
   check(%INPUT_DOCUMENT.%REDSHIFT_CLUSTER_TYPE.resourceProperties)
   <<
   [CT.REDSHIFT.PR.1]: Require an Amazon Redshift cluster to prohibit public access
   [FIX]: Set 'PubliclyAccessible' to 'false'.
   >>
}

# Parameterized Rules

rule check(redshift_cluster) {
   %redshift_cluster {
      # Scenario 2
      PubliclyAccessible exists
      # Scenario 3 and 4
      PubliclyAccessible == false
   }
}

# Utility Rules

rule is_cfn_template(doc) {
   %doc {
      AWSTemplateFormatVersion exists or
      Resources exists
   }
}
CT.REDSHIFT.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  RedshiftSecret:
    Type: AWS::SecretsManager::Secret
    Properties:
      Description: Redshift cluster secret
      GenerateSecretString:
        SecretStringTemplate: '{"username": "examplemasterusername"}'
        GenerateStringKey: password
        PasswordLength: 16
        ExcludeCharacters: "'"/@\\"
  RedshiftCluster:
    Type: AWS::Redshift::Cluster
    Properties:
      ClusterType: single-node
      DBName: exampledb
      MasterUsername:
        Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
      MasterUserPassword:
        Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
      NodeType: dc2.large
      PubliclyAccessible: false
```

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Resources:
RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasterusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: '"@/"'
RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: exampledb
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: dc2.large
    PubliclyAccessible: true

[CT.REDSHIFT.PR.2] Require an Amazon Redshift cluster to have automatic snapshots configured

This control checks whether Amazon Redshift clusters have automated snapshots enabled, and that the clusters are set with an automated snapshot retention period greater than or equal to seven (7) days.

- **Control objective:** Improve resiliency
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Redshift::Cluster
- **AWS CloudFormation guard rule:** [CT.REDSHIFT.PR.2 rule specification](#)

Details and examples
For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the:

CT.REDSHIFT.PR.2 rule specification

For examples of PASS and FAIL CloudFormation Templates related to this control, see:

CT.REDSHIFT.PR.2 example templates

Explanation

Backups help you to recover more quickly from a security incident. They strengthen the resilience of your systems. Amazon Redshift takes periodic snapshots by default. This control checks whether automatic snapshots are created and retained for at least seven days.

Remediation for rule failure

Set AutomatedSnapshotRetentionPeriod to an integer value greater than or equal to 7 days.

The examples that follow show how to implement this remediation.

Amazon Redshift Cluster - Example

Amazon Redshift cluster configured with automatic snapshots active. The example is shown in JSON and in YAML.

JSON example

```json
{
   "RedshiftCluster": {
      "Type": "AWS::Redshift::Cluster",
      "Properties": {
         "ClusterType": "single-node",
         "DBName": "sampledb",
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::password}}"
         },
         "NodeType": "ds2.xlarge",
         "AutomatedSnapshotRetentionPeriod": 7
      }
   }
}
```
**YAML example**

```yaml
RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: sampledb
    MasterUsername: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: ds2.xlarge
    AutomatedSnapshotRetentionPeriod: 7
```

**CT.REDSHIFT.PR.2 rule specification**

```yaml
# ###################################################################
#   Rule Specification     #
# ###################################################################
#
# Rule Identifier:
#   redshift_backup_enabled_check
#
# Description:
#   This control checks whether Amazon Redshift clusters have automated snapshots enabled, and that the clusters are set with an automated snapshot retention period greater than or equal to seven (7) days.
#
# Reports on:
#   AWS::Redshift::Cluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any Redshift cluster resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Redshift cluster resource
# And: 'AutomatedSnapshotRetentionPeriod' has not been specified
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Redshift cluster resource
# And: 'AutomatedSnapshotRetentionPeriod' has been specified
# And: 'AutomatedSnapshotRetentionPeriod' has been set to '0'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Redshift cluster resource
# And: 'AutomatedSnapshotRetentionPeriod' has been specified
# And: 'AutomatedSnapshotRetentionPeriod' has been set to a value <7
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Redshift cluster resource
# And: 'AutomatedSnapshotRetentionPeriod' has been specified
# And: 'AutomatedSnapshotRetentionPeriod' has been set to a value >= 7
# Then: PASS

# Constants
#
let REDSHIFT_CLUSTER_TYPE = "AWS::Redshift::Cluster"
let INPUT_DOCUMENT = this

# Assignments
#
let redshift_clusters = Resources.*[ Type == %REDSHIFT_CLUSTER_TYPE ]
# Primary Rules

rule redshift_backup_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
    %redshift_clusters not empty {
    check(%redshift_clusters.Properties)
    <<
    [CT.REDSHIFT.PR.2]: Require an Amazon Redshift cluster to have automatic snapshots configured
    [FIX]: Set 'AutomatedSnapshotRetentionPeriod' to an integer value greater than or equal to 7 days.
    >>
}

rule redshift_backup_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %REDSHIFT_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%REDSHIFT_CLUSTER_TYPE.resourceProperties)
    <<
    [CT.REDSHIFT.PR.2]: Require an Amazon Redshift cluster to have automatic snapshots configured
    [FIX]: Set 'AutomatedSnapshotRetentionPeriod' to an integer value greater than or equal to 7 days.
    >>
}

# Parameterized Rules

rule check(redshift_cluster) {
    %redshift_cluster {
    # Scenario 2
    AutomatedSnapshotRetentionPeriod exists
    # Scenario 3, 4 and 5
    AutomatedSnapshotRetentionPeriod >= 7
    }
}

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
    AWSTemplateFormatVersion exists or Resources exists
    }
}
**CT.REDSHIFT.PR.2 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  RedshiftSecret:
    Type: AWS::SecretsManager::Secret
    Properties:
      Description: Redshift cluster secret
      GenerateString:
        SecretStringTemplate: '{"username": "examplemasterusername"}
        GenerateStringKey: password
        PasswordLength: 16
        ExcludeCharacters: "'"@/\"
    RedshiftCluster:
      Type: AWS::Redshift::Cluster
      Properties:
        ClusterType: single-node
        DBName: exampledb
        MasterUsername:
          Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
        MasterUserPassword:
          Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
        NodeType: dc2.large
        PubliclyAccessible: false
        AutomatedSnapshotRetentionPeriod: 7
```

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Resources:

RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasterusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: '"@/\"

RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: exampledb
    MasterUsername:
      Fn::Sub: '{\{resolve:secretsmanager:${RedshiftSecret}::username\}}'
    MasterUserPassword:
      Fn::Sub: '{\{resolve:secretsmanager:${RedshiftSecret}::password\}}'
    NodeType: dc2.large
    PubliclyAccessible: false
    AutomatedSnapshotRetentionPeriod: 5

[CT.REDSHIFT.PR.3] Require an Amazon Redshift cluster to have audit logging configured

This control checks whether an Amazon Redshift cluster has audit logging activated.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Redshift::Cluster
- **AWS CloudFormation guard rule:** [CT.REDSHIFT.PR.3 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.REDSHIFT.PR.3 rule specification](#)
• For examples of PASS and FAIL CloudFormation Templates related to this control, see:
  [CT.REDSHIFT.PR.3 example templates](#)

**Explanation**

Amazon Redshift audit logging provides additional information about connections and user activities in your cluster. This data can be stored and secured in Amazon S3, and it can be helpful for security audits and investigations.

**Remediation for rule failure**

Provide a `LoggingProperties` configuration and set `BucketName` to the name of an Amazon S3 bucket configured to receive Amazon Redshift audit logs.

The examples that follow show how to implement this remediation.

**Amazon Redshift Cluster - Example**

Amazon Redshift cluster configured with audit logging enabled. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "RedshiftCluster": {
      "Type": "AWS::Redshift::Cluster",
      "Properties": {
         "ClusterType": "single-node",
         "DBName": "sampledb",
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::password}}"
         },
         "NodeType": "dc2.large",
         "PubliclyAccessible": false,
         "LoggingProperties": {
            "BucketName": {
               "Ref": "S3Bucket"
            },
            "S3KeyPrefix": "sample-cluster-logs"
         }
      }
   }
}
```
YAML example

RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: sampledb
    MasterUsername: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: dc2.large
    PubliclyAccessible: false
    LoggingProperties:
      BucketName: !Ref 'S3Bucket'
      S3KeyPrefix: sample-cluster-logs

CT.REDSHIFT.PR.3 rule specification

# ###################################################################
##     Rule Specification    ##
# ###################################################################

# Rule Identifier:
#  redshift_cluster_audit_logging_enabled_check
#
# Description:
#  This control checks whether an Amazon Redshift cluster has audit logging activated.
#
# Reports on:
#  AWS::Redshift::Cluster
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#  Scenario: 1
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#      And: The input document does not contain any Redshift cluster resources
#      Then: SKIP
#  Scenario: 2
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#      And: The input document contains a Redshift cluster resource
#      And: 'LoggingProperties' has not been specified
#      Then: FAIL
#  Scenario: 3
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#      And: The input document contains a Redshift cluster resource
#      And: 'LoggingProperties' has been specified
#      And: 'BucketName' on 'LoggingProperties' has been specified and is an empty
#           string or invalid local reference
#      Then: FAIL
#  Scenario: 4
#    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#      And: The input document contains a Redshift cluster resource
#      And: 'LoggingProperties' has been specified
#      And: 'BucketName' on 'LoggingProperties' has been specified and is a non-empty
#           string or valid local reference
#      Then: PASS

# Constants
#
let REDSHIFT_CLUSTER_TYPE = "AWS::Redshift::Cluster"
let INPUT_DOCUMENT = this

# Assignments
#
let redshift_clusters = Resources.*[ Type == %REDSHIFT_CLUSTER_TYPE ]
# Primary Rules

rule redshift_cluster_audit_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT) 
%redshift_clusters not empty  {
    check(%redshift_clusters.Properties)
    %redshift_clusters not empty  {
        [CT.REDSHIFT.PR.3]: Require an Amazon Redshift cluster to have audit logging configured
        [FIX]: Provide a 'LoggingProperties' configuration and set 'BucketName' to the name of an Amazon S3 bucket configured to receive Amazon Redshift audit logs.
        >>
    }
}

rule redshift_cluster_audit_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %REDSHIFT_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%REDSHIFT_CLUSTER_TYPE.resourceProperties)
    <<
    [CT.REDSHIFT.PR.3]: Require an Amazon Redshift cluster to have audit logging configured
    [FIX]: Provide a 'LoggingProperties' configuration and set 'BucketName' to the name of an Amazon S3 bucket configured to receive Amazon Redshift audit logs.
    >>
}

# Parameterized Rules

rule check(redshift_cluster) {
    %redshift_cluster {
        # Scenario 2
        LoggingProperties exists
        LoggingProperties is_struct

        LoggingProperties {
            # Scenario 3 and 4
            BucketName exists
            check_is_string_and_not_empty(BucketName) or check_local_references(%INPUT_DOCUMENT, BucketName, "AWS::S3::Bucket")
        }
    }
}

# Utility Rules
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != \A\s*\z/
    }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_resource_type)
            <<Local Stack reference was invalid>>
        }
    }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    %referenced_resource not empty
    %referenced_resource {
        Type == %referenced_resource_type
    }
}
CT.REDSHIFT.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  S3Bucket:
    Type: AWS::S3::Bucket
  BucketPolicy:
    Type: AWS::S3::BucketPolicy
    Properties:
      Bucket:
        Ref: S3Bucket
      PolicyDocument:
        Version: 2012-10-17
        Statement:
        - Effect: Allow
          Principal:
            Service: redshift.amazonaws.com
          Action:
            - s3:GetBucketAcl
          Resource:
            - Fn::GetAtt:
              - S3Bucket
              - Arn
        - Effect: Allow
          Principal:
            Service: redshift.amazonaws.com
          Action:
            - s3:PutObject
          Resource:
            - Fn::Join:
              - '
                - Fn::GetAtt:
                  - S3Bucket
                  - Arn
              - /*

RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
```
GenerateSecretString:
  SecretStringTemplate: '{"username": "examplemasterusername"}'
  GenerateStringKey: password
  PasswordLength: 16
  ExcludeCharacters: "'"@/\"

RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: exampledb
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: dc2.large
    PubliclyAccessible: false
    LoggingProperties:
      BucketName:
      Ref: S3Bucket
      S3KeyPrefix: example-cluster-logs

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasterusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: "'"@/\"

RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: exampledb
    MasterUsername:
[CT.REDSHIFT.PR.4] Require an Amazon Redshift cluster to have automatic upgrades to major versions configured

This control checks whether automatic major version upgrades are enabled for your Amazon Redshift cluster.

- **Control objective:** Manage vulnerabilities
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Redshift::Cluster
- **AWS CloudFormation guard rule:** [CT.REDSHIFT.PR.4 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.REDSHIFT.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.REDSHIFT.PR.4 example templates](#)

Explanation

Enabling automatic major version upgrades ensures that the latest major version updates to Amazon Redshift clusters are installed during the maintenance window. These updates might include security patches and bug fixes. Keeping up to date with patch installation is an important step in securing systems.

**Remediation for rule failure**

Set the `AllowVersionUpgrade` property to true or do not specify it (default).

The examples that follow show how to implement this remediation.
Amazon Redshift Cluster - Example One

Amazon Redshift cluster with automatic major version upgrades enabled through AWS CloudFormation defaults. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "RedshiftCluster": {
    "Type": "AWS::Redshift::Cluster",
    "Properties": {
      "ClusterType": "single-node",
      "DBName": "exampledb",
      "MasterUsername": {
        "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::username}}"
      },
      "MasterUserPassword": {
        "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::password}}"
      },
      "NodeType": "ds2.xlarge"
    }
  }
}
```

**YAML example**

```yaml
RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: exampledb
    MasterUsername: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: ds2.xlarge
```

The examples that follow show how to implement this remediation.
Amazon Redshift Cluster - Example Two

Amazon Redshift cluster configured with automatic major version upgrades enabled through the `AllowVersionUpgrade` property. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "RedshiftCluster": {
      "Type": "AWS::Redshift::Cluster",
      "Properties": {
         "ClusterType": "single-node",
         "DBName": "exampledb",
         "MasterUsername": {
            "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::username}}"
         },
         "MasterUserPassword": {
            "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::password}}"
         },
         "NodeType": "ds2.xlarge",
         "AllowVersionUpgrade": true
      }
   }
}
```

**YAML example**

```yaml
RedshiftCluster:
   Type: AWS::Redshift::Cluster
   Properties:
      ClusterType: single-node
      DBName: exampledb
      MasterUsername: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
      MasterUserPassword: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
      NodeType: ds2.xlarge
      AllowVersionUpgrade: true
```

# Rule Specification

## Rule Identifier:
redshift_cluster_allow_version_upgrade_check

## Description:
Checks whether automatic major version upgrades are enabled for the Amazon Redshift cluster.

## Reports on:
AWS::Redshift::Cluster

## Evaluates:
AWS CloudFormation, AWS CloudFormation hook

## Rule Parameters:
None

## Scenarios:

### Scenario: 1
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document does not contain any Redshift cluster resources
Then: SKIP

### Scenario: 2
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains a Redshift cluster resource
And: 'AllowVersionUpgrade' has been provided
And: 'AllowVersionUpgrade' has been set to bool(false)
Then: FAIL

### Scenario: 3
Given: The input document is an AWS CloudFormation or CloudFormation hook document
And: The input document contains a Redshift cluster resource
And: 'AllowVersionUpgrade' has not been provided
Then: PASS

### Scenario: 4
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains a Redshift cluster resource
# And: 'AllowVersionUpgrade' has been provided
# And: 'AllowVersionUpgrade' has been set to bool(true)
# Then: PASS

# Constants
#
let REDSHIFT_CLUSTER_TYPE = "AWS::Redshift::Cluster"
let INPUT_DOCUMENT = this

# Assignments
#
let redshift_clusters = Resources.*[ Type == %REDSHIFT_CLUSTER_TYPE ]

# Primary Rules
#
rule redshift_cluster_allow_version_upgrade_check when is_cfn_template(%INPUT_DOCUMENT) %redshift_clusters not empty {  
  check(%redshift_clusters.Properties)
  let redshift_clusters = Resources.*[ Type == %REDSHIFT_CLUSTER_TYPE ]
  %redshift_clusters not empty {  
    check(%redshift_clusters.Properties)
    If: %redshift_clusters not empty {  
      [CT.REDSHIFT.PR.4]: Require an Amazon Redshift cluster to have automatic upgrades to major versions configured
      [FIX]: Set the 'AllowVersionUpgrade' property to true or do not specify it (default).
      }  
  }  
}

rule redshift_cluster_allow_version_upgrade_check when is_cfn_hook(%INPUT_DOCUMENT, %REDSHIFT_CLUSTER_TYPE) {  
  check(%INPUT_DOCUMENT.%REDSHIFT_CLUSTER_TYPE.resourceProperties)
  If: %INPUT_DOCUMENT.%REDSHIFT_CLUSTER_TYPE.resourceProperties {  
    [CT.REDSHIFT.PR.4]: Require an Amazon Redshift cluster to have automatic upgrades to major versions configured
    [FIX]: Set the 'AllowVersionUpgrade' property to true or do not specify it (default).
    }  
}

#
# Parameterized Rules

```python
# Parameterized Rules
#
rule check(redshift_cluster) {
    %redshift_cluster {
        # Scenario 3
        AllowVersionUpgrade not exists or
        # Scenario 2 and 4
        AllowVersionUpgrade == true
    }
}
#
# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

CT.REDSHIFT.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
    RedshiftSecret:
        Type: AWS::SecretsManager::Secret
        Properties:
            Description: Redshift cluster secret
            GenerateSecretString:
                SecretStringTemplate: '{"username": "examplemasterusername"}'
                GenerateStringKey: password
                PasswordLength: 16
```
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasterusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: "'"@/\"

RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: exampledb
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: dc2.large
    PubliclyAccessible: false
    AllowVersionUpgrade: false
[CT.REDSHIFT.PR.5] Require an Amazon Redshift cluster to have enhanced VPC routing

This control checks whether an Amazon Redshift cluster has enhanced VPC routing configured.

- **Control objective**: Limit network access
- **Implementation**: AWS CloudFormation Guard Rule
- **Control behavior**: Proactive
- **Resource types**: AWS::Redshift::Cluster
- **AWS CloudFormation guard rule**: CT.REDSHIFT.PR.5 rule specification

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.REDSHIFT.PR.5 rule specification
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.REDSHIFT.PR.5 example templates

**Explanation**

Enhanced VPC routing forces all copy and unLoad traffic between the cluster and the data repositories to go through your VPC. With enhanced routing active, you can use VPC features, such as security groups and network access control lists, to secure network traffic. You can also use VPC Flow Logs to monitor network traffic.

**Remediation for rule failure**

Set EnhancedVpcRouting to true.

The examples that follow show how to implement this remediation.

**Amazon Redshift Cluster - Example**

Amazon Redshift cluster configured with enhanced VPC routing. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "RedshiftCluster": {
```
"Type": "AWS::Redshift::Cluster",
"Properties": {
    "ClusterType": "single-node",
    "DBName": "sampledb",
    "MasterUsername": {
        "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::username}}",
    },
    "MasterUserPassword": {
        "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::password}}",
    },
    "NodeType": "ds2.xlarge",
    "EnhancedVpcRouting": true
}
}

YAML example

RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: sampledb
    MasterUsername: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: ds2.xlarge
    EnhancedVpcRouting: true

CT.REDSHIFT.PR.5 rule specification

# ####################################################################
##     Rule Specification     ##
# ####################################################################
#
# Rule Identifier:
#   redshift_enhanced_vpc_routing_enabled_check
#
# Description:
# This control checks whether an Amazon Redshift cluster has enhanced VPC routing configured.
#
# Reports on:
#   AWS::Redshift::Cluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any Redshift cluster resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Redshift cluster resource
#     And: 'EnhancedVpcRouting' has not been specified
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Redshift cluster resource
#     And: 'EnhancedVpcRouting' has been specified
#     And: 'EnhancedVpcRouting' has been set to bool(false)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a Redshift cluster resource
#     And: 'EnhancedVpcRouting' has been specified
#     And: 'EnhancedVpcRouting' has been set to bool(true)
#     Then: PASS
#
# Constants
#
let REDSHIFT_CLUSTER_TYPE = "AWS::Redshift::Cluster"
let INPUT_DOCUMENT = this
# Assignments

let redshift_clusters = Resources.*[ Type == %REDSHIFT_CLUSTER_TYPE ]

# Primary Rules

rule redshift_enhanced_vpc_routing_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%redshift_clusters not empty {
  check(%redshift_clusters.Properties)
  <<
  [CT.REDSHIFT.PR.5]: Require an Amazon Redshift cluster to have enhanced VPC routing
  [FIX]: Set 'EnhancedVpcRouting' to 'true'.
  >>
}

rule redshift_enhanced_vpc_routing_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %REDSHIFT_CLUSTER_TYPE) {
  check(%INPUT_DOCUMENT.%REDSHIFT_CLUSTER_TYPE.resourceProperties)
  <<
  [CT.REDSHIFT.PR.5]: Require an Amazon Redshift cluster to have enhanced VPC routing
  [FIX]: Set 'EnhancedVpcRouting' to 'true'.
  >>
}

# Parameterized Rules

rule check(redshift_cluster) {
  %redshift_cluster {
    # Scenario 2
    EnhancedVpcRouting exists
    # Scenario 3 and 4
    EnhancedVpcRouting == true
  }
}

# Utility Rules

Proactive controls
CT.REDSHIFT.PR.5 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasterusername"}"
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: '\"@/\"'

RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: exampledb
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: dc2.large
    PubliclyAccessible: false
    EnhancedVpcRouting: true
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:
      SecretStringTemplate: "{{"username": examplemasterusername}}"
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: ",@/\"
  RedshiftCluster:
    Type: AWS::Redshift::Cluster
    Properties:
      ClusterType: single-node
      DBName: exampledb
      MasterUsername:
        Fn::Sub: '{\{resolve:secretsmanager:{\RedshiftSecret\::username}}'\n      MasterUserPassword:
        Fn::Sub: '{\{resolve:secretsmanager:{\RedshiftSecret\::password}}'\n      NodeType: dc2.large
      PubliclyAccessible: false
      EnhancedVpcRouting: false

[CT.REDSHIFT.PR.6] Require an Amazon Redshift cluster to have a unique administrator username

This control checks whether an Amazon Redshift cluster has changed the administrator username from its default value.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Redshift::Cluster
**AWS CloudFormation guard rule:** [CT.REDSHIFT.PR.6 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.REDSHIFT.PR.6 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.REDSHIFT.PR.6 example templates](#)

**Explanation**

When creating an Amazon Redshift cluster, you should change the default administrator username to a unique value. Default usernames are public knowledge, so they should be changed upon configuration. Changing the default username reduces the risk of unintended access.

**Remediation for rule failure**

Set **MasterUsername** to a value other than **awsuser**.

The examples that follow show how to implement this remediation.

**Amazon Redshift Cluster - Example**

Amazon Redshift cluster configured with an administrator username different from the default value of **awsuser**. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "RedshiftCluster": {
    "Type": "AWS::Redshift::Cluster",
    "Properties": {
      "ClusterType": "single-node",
      "DBName": "sampledb",
      "MasterUsername": "samplemasterusername",
      "MasterUserPassword": {
        "Fn::Sub": "{{resolve:secretsmanager:${RedshiftClusterSecret}::password}}"
      },
      "NodeType": "ds2.xlarge"
    }
  }
}
```
YAML example

RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: sampledb
    MasterUsername: samplemasterusername
    MasterUserPassword: !Sub '${resolve:secretsmanager:
                           ${RedshiftClusterSecret}::password}'
    NodeType: ds2.xlarge

CT.REDSHIFT.PR.6 rule specification

# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   redshift_default_admin_check
#
# Description:
#   This control checks whether an Amazon Redshift cluster has changed the
#   administrator username from its default value.
#
# Reports on:
#   AWS::Redshift::Cluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:

Proactive controls
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any Redshift cluster resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Redshift cluster resource
# And: 'MasterUsername' has not been specified
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Redshift cluster resource
# And: 'MasterUsername' has been specified
# And: 'MasterUsername' has been set to 'awsuser'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Redshift cluster resource
# And: 'MasterUsername' has been specified
# And: 'MasterUsername' has been set to a value not equal to 'awsuser'
# Then: PASS

# Constants
#
let REDSHIFT_CLUSTER_TYPE = "AWS::Redshift::Cluster"
let INPUT_DOCUMENT = this

# Assignments
#
let redshift_clusters = Resources.*[ Type == %REDSHIFT_CLUSTER_TYPE ]

# Primary Rules
#
rule redshift_default_admin_check when is_cfn_template(%INPUT_DOCUMENT)
  %redshift_clusters not empty { check(%redshift_clusters.Properties)
    }
[CT.REDSHIFT.PR.6]: Require an Amazon Redshift cluster to have a unique administrator username

[FIX]: Set 'MasterUsername' to a value other than 'awsuser'.

>>

rule redshift_default_admin_check when is_cfn_hook(%INPUT_DOCUMENT, %REDSHIFT_CLUSTER_TYPE) {
    check(%INPUT_DOCUMENT.%REDSHIFT_CLUSTER_TYPE.resourceProperties)
    <=
    [CT.REDSHIFT.PR.6]: Require an Amazon Redshift cluster to have a unique administrator username
    [FIX]: Set 'MasterUsername' to a value other than 'awsuser'.
    >>
}

# Parameterized Rules
#
rule check(redshift_cluster) {
    %redshift_cluster {
        # Scenario 2
        MasterUsername exists
        check_is_string_and_not_empty(MasterUsername)

        # Scenario 3 and 4
        MasterUsername != "awsuser"
    }
}

# Utility Rules
#
rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
CT.REDSHIFT.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasterusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: '"@/\"
RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: exampledb
    MasterUsername: examplemasterusername
    MasterUserPassword:
      Fn::Sub: '{\resolve:secretsmanager:${RedshiftSecret}::password}'
    NodeType: dc2.large
    PubliclyAccessible: false

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
[CT.REDSHIFT.PR.7] Require an Amazon Redshift cluster to have a unique database name

This control checks whether an Amazon Redshift cluster has changed its database name from the default value.

- **Control objective:** Protect configurations
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Redshift::Cluster
- **AWS CloudFormation guard rule:** [CT.REDSHIFT.PR.7 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.REDSHIFT.PR.7 rule specification](#)
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.REDSHIFT.PR.7 example templates](#)

**Explanation**

When creating a Redshift cluster, you should change the default database name to a unique value. Default names are public knowledge, so they should be changed upon configuration. For example, a well-known name can lead to inadvertent access, if included in IAM policy conditions.

**Remediation for rule failure**

Set `DBName` to a database name that is different from the default value of `dev`.

The examples that follow show how to implement this remediation.

**Amazon Redshift Cluster - Example**

Amazon Redshift cluster configured with a database name different from the default value of `dev`. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "RedshiftCluster": {
        "Type": "AWS::Redshift::Cluster",
        "Properties": {
            "ClusterType": "single-node",
            "DBName": "sampledb",
            "MasterUsername": {
                "Fn::Sub": "{{resolve:secretsmanager: ${RedshiftClusterSecret}::username}}"
            },
            "MasterUserPassword": {
                "Fn::Sub": "{{resolve:secretsmanager: ${RedshiftClusterSecret}::password}}"
            },
            "NodeType": "dc2.large",
            "PubliclyAccessible": false
        }
    }
}
```
**YAML example**

```yaml
RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: sampledb
    MasterUsername: !Sub '{{resolve:secretsmanager: ${RedshiftClusterSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager: ${RedshiftClusterSecret}::password}}'
    NodeType: dc2.large
    PubliclyAccessible: false
```

**CT.REDSHIFT.PR.7 rule specification**

```plaintext
# ##############################################################################
##       Rule Specification        ##
##############################################################################
#
# Rule Identifier:
#    redshift_default_db_name_check
#
# Description:
#    This control checks whether an Amazon Redshift cluster has changed its database
#    name from the default value.
#
# Reports on:
#    AWS::Redshift::Cluster
#
# Evaluates:
#    AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#    None
#
# Scenarios:
#    Scenario: 1
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any Redshift cluster resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a Redshift cluster resource
# And: The 'DBName' property has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains Redshift cluster resource
# And: The 'DBName' property has been provided with a value of 'dev' or an empty string
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains Redshift cluster resource
# And: The 'DBName' property has been provided with a non-empty string that is not equal to 'dev'
# Then: PASS

# Constants
#
let RESOURCE_TYPE = "AWS::Redshift::Cluster"
let INPUT_DOCUMENT = this
let INVALID_DB_NAME_STRING = "dev"
#
# Assignments
#
let redshift_clusters = Resources.*[ Type == %RESOURCE_TYPE ]
#
# Primary Rules
#
rule redshift_default_db_name_check when is_cfn_template(%INPUT_DOCUMENT)
%redshift_clusters not empty {
    check_db_name(%redshift_clusters.Properties)
    <<
[CT.REDSHIFT.PR.7]: Require an Amazon Redshift cluster to have a unique database name

[FIX]: Set 'DBName' to a database name that is different from the default value of 'dev'.

>

}

rule redshift_default_db_name_check when is_cfn_hook(%INPUT_DOCUMENT, %RESOURCE_TYPE) {
    check_db_name(%INPUT_DOCUMENT.%RESOURCE_TYPE.resourceProperties)
    <=
    [CT.REDSHIFT.PR.7]: Require an Amazon Redshift cluster to have a unique database name
    [FIX]: Set 'DBName' to a database name that is different from the default value of 'dev'.
    >>
}

#
# Parameterized Rules
#
rule check_db_name(redshift_cluster) {
    %redshift_cluster {
        # Scenario 2
        DBName exists

        # Scenario 3 and 4
        check_is_string_and_not_empty(DBName)
        DBName != %INVALID_DB_NAME_STRING
    }
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.REDSHIFT.PR.7 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:
      SecretStringTemplate: "{"username": "examplemasterusername"}"
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: "'"@/\"
RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: "single-node"
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: dc2.large
    PubliclyAccessible: false
    DBName: exampledb
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasterusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: '"@/\'
RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: "single-node"
    MasterUsername:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword:
      Fn::Sub: '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: dc2.large
    PubliclyAccessible: false
    DBName: dev

[CT.REDSHIFT.PR.8] Require an Amazon Redshift cluster to be encrypted

This control checks whether an Amazon Redshift cluster is encrypted.

- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Redshift::Cluster
- **AWS CloudFormation guard rule:** [CT.REDSHIFT.PR.8 rule specification](#)

Details and examples
For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the:  
[CT.REDSHIFT.PR.8 rule specification](#)

For examples of PASS and FAIL CloudFormation templates related to this control, see:  
[CT.REDSHIFT.PR.8 example templates](#)

Explanation

In Amazon Redshift, you can enable database encryption for your clusters, which helps protect data at rest. When you enable encryption for a cluster, the data blocks and system metadata are encrypted for the cluster and its snapshots.

Remediation for rule failure

Set the value of the Encrypted property to true.

The examples that follow show how to implement this remediation.

Amazon Redshift Cluster - Example

An Amazon Redshift cluster configured with encryption enabled. The example is shown in JSON and in YAML.

JSON example

```json
{
    "RedshiftCluster": {
        "Type": "AWS::Redshift::Cluster",
        "Properties": {
            "ClusterType": "single-node",
            "DBName": "sampledb",
            "MasterUsername": {
                "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::username}}"
            },
            "MasterUserPassword": {
                "Fn::Sub": "{{resolve:secretsmanager:${RedshiftSecret}::password}}"
            },
            "NodeType": "dc2.large",
            "PubliclyAccessible": false,
            "Encrypted": true
        }
    }
}
```
**YAML example**

```yaml
RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    DBName: sampledb
    MasterUsername: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::username}}'
    MasterUserPassword: !Sub '{{resolve:secretsmanager:${RedshiftSecret}::password}}'
    NodeType: dc2.large
    PubliclyAccessible: false
    Encrypted: true
```

**CT.REDSHIFT.PR.8 rule specification**

```plaintext
# ###################################################################
##       Rule Specification        ##
# ###################################################################
#
# Rule Identifier:
#   redshift_cluster_encrypted_check
#
# Description:
#   This control checks whether an Amazon Redshift cluster is encrypted.
#
# Reports on:
#   AWS::Redshift::Cluster
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
```
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any Amazon Redshift cluster resources
# Then: SKIP

# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon Redshift cluster resource
# And: 'Encrypted' has not been provided
# Then: FAIL

# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon Redshift cluster resource
# And: 'Encrypted' has been provided and set to a value other than bool(true)
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an Amazon Redshift cluster resource
# And: 'Encrypted' has been provided and set to bool(true)
# Then: PASS

# Constants
#
let RESOURCE_TYPE = "AWS::Redshift::Cluster"
let INPUT_DOCUMENT = this

#
# Assignments
#
let redshift_clusters = Resources.*[ Type == %RESOURCE_TYPE ]

#
# Primary Rules
#
rule redshift_cluster_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
%redshift_clusters not empty {
  check(%redshift_clusters.Properties)
  <<<
  [CT.REDSHIFT.PR.8]: Require an Amazon Redshift cluster to be encrypted
  [FIX]: Set the value of the 'Encrypted' property to true.
  >>>
}
rule redshift_cluster_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %RESOURCE_TYPE) {
    check(%INPUT_DOCUMENT.%RESOURCE_TYPE.resourceProperties)
    <<
        [CT.REDSHIFT.PR.8]: Require an Amazon Redshift cluster to be encrypted
        [FIX]: Set the value of the 'Encrypted' property to true.
    >>
}

# # Parameterized Rules #
#
rule check(redshift_cluster) {
    %redshift_cluster {
        # Scenario 2
        Encrypted exists

        # Scenario 3 and 4
        Encrypted == true
    }
}

# # Utility Rules #
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.REDSHIFT.PR.8 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:
      SecretStringTemplate: '{"username": "examplemasterusername"}'
      GenerateStringKey: password
      PasswordLength: 16
      ExcludeCharacters: '\"@/\"'
RedshiftCluster:
  Type: AWS::Redshift::Cluster
  Properties:
    ClusterType: single-node
    MasterUsername:
      Fn::Sub: '{resolve:secretsmanager:${RedshiftSecret}::username}'
    MasterUserPassword:
      Fn::Sub: '{resolve:secretsmanager:${RedshiftSecret}::password}'
    NodeType: dc2.large
    PubliclyAccessible: false
    DBName: exampledb
    Encrypted: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
RedshiftSecret:
  Type: AWS::SecretsManager::Secret
  Properties:
    Description: Redshift cluster secret
    GenerateSecretString:

[CT.REDSHIFT.PR.9] Require that an Amazon Redshift cluster parameter group is configured to use Secure Sockets Layer (SSL) for encryption of data in transit

This control checks whether an Amazon Redshift cluster parameter group is configured to require encryption by means of Secure Sockets Layer (SSL), for data in transit.

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::Redshift::ClusterParameterGroup
- **AWS CloudFormation guard rule:** [CT.REDSHIFT.PR.9 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.REDSHIFT.PR.9 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.REDSHIFT.PR.9 example templates](#)

**Explanation**
In Amazon Redshift, you can enable encryption of data in transit between an Amazon Redshift cluster and SQL clients over JDBC/ODBC. To support SSL connections, Amazon Redshift creates and installs certificates on each cluster, which are issued by AWS Certificate Manager (ACM).

**Remediation for rule failure**

Set an entry in Parameters with a ParameterName of `require_ssl` and a ParameterValue of true.

The examples that follow show how to implement this remediation.

**Amazon Redshift cluster parameter group - Example**

An Amazon Redshift cluster parameter group, configured to require encryption of data in transit. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "ClusterParameterGroup": {
        "Type": "AWS::Redshift::ClusterParameterGroup",
        "Properties": {
            "Description": "Example parameter group",
            "ParameterGroupFamily": "redshift-1.0",
            "Parameters": [
                {
                    "ParameterName": "require_ssl",
                    "ParameterValue": true
                }
            ]
        }
    }
}
```

**YAML example**

```yaml
ClusterParameterGroup:
  Type: AWS::Redshift::ClusterParameterGroup
  Properties:
    Description: Example parameter group
```

**Proactive controls**

2129
ParameterGroupFamily: redshift-1.0
Parameters:
  - ParameterName: require_ssl
    ParameterValue: true

CT.REDSHIFT.PR.9 rule specification

# ####################################################################
##       Rule Specification        ##
####################################################################
#
# Rule Identifier:
#   redshift_parameter_group_require_tls_ssl_check
#
# Description:
#   This control checks whether an Amazon Redshift cluster parameter group is
#   configured to require
#   encryption by means of Secure Sockets Layer (SSL), for data in transit.
#
# Reports on:
#   AWS::Redshift::ClusterParameterGroup
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any Amazon Redshift cluster parameter
group resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an Amazon Redshift cluster parameter group
resource
# And: 'Parameters' has not been provided or has been provided as an empty list
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon Redshift cluster parameter group resource
# And: 'Parameters' has been provided as a non-empty list that does not contain
an entry with
# 'ParameterName' set to 'require_ssl' and 'ParameterValue' set to
bool(true) or a supported
# boolean string value ('true', 'True', 'TRUE', 'on', 'On' or 'ON')
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon Redshift cluster parameter group resource
# And: Any entry in 'Parameters' with a 'ParameterName' is set to 'require_ssl'
has a corresponding
# 'ParameterValue' set to a value other than bool(true) or a supported
# boolean string value ('true', 'True', 'TRUE', 'on', 'On' or 'ON')
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an Amazon Redshift cluster parameter group resource
# And: 'Parameters' has been provided as a non-empty list
# And: 'Parameters' contains an entry with 'ParameterName' set to 'require_ssl'
and 'ParameterValue'
# set to bool(true) or a supported boolean string value ('true', 'True',
'TRUE', 'on', 'On' or 'ON')
# And: All entries in 'Parameters' with a 'ParameterName' set to 'require_ssl'
have a corresponding
# 'ParameterValue' set to bool(true) or a supported boolean string
# value ('true', 'True', 'TRUE', 'on', 'On' or 'ON')
# Then: PASS

#
#
# Constants
#
let REDSHIFT_CLUSTER_PARAMETER_GROUP_TYPE = "AWS::Redshift::ClusterParameterGroup"
let REDSHIFT_SUPPORTED_TRUE_VALUES = [ true, /^(true|True|TRUE|on|On|ON)$/ ]
let INPUT_DOCUMENT = this

# Assignments
#
let redshift_cluster_parameter_groups = Resources.*[ Type == %REDSHIFT_CLUSTER_PARAMETER_GROUP_TYPE ]

# Primary Rules
#
rule redshift_parameter_group_require_tls_ssl_check when
   is_cfn_template(%INPUT_DOCUMENT)
%redshift_cluster_parameter_groups not empty {
   check(%redshift_cluster_parameter_groups.Properties)
   <<
   [CT.REDSHIFT.PR.9]: Require that an Amazon Redshift cluster parameter group is configured to use Secure Sockets Layer (SSL) for encryption of data in transit
   [FIX]: Set an entry in 'Parameters' with a 'ParameterName' of 'require_ssl' and a 'ParameterValue' of true.
   >>
}

rule redshift_parameter_group_require_tls_ssl_check when is_cfn_hook(%INPUT_DOCUMENT, %REDSHIFT_CLUSTER_PARAMETER_GROUP_TYPE) {
   check(%INPUT_DOCUMENT.%REDSHIFT_CLUSTER_PARAMETER_GROUP_TYPE.resourceProperties)
   <<
   [CT.REDSHIFT.PR.9]: Require that an Amazon Redshift cluster parameter group is configured to use Secure Sockets Layer (SSL) for encryption of data in transit
   [FIX]: Set an entry in 'Parameters' with a 'ParameterName' of 'require_ssl' and a 'ParameterValue' of true.
   >>
}

# Parameterized Rules
#
rule check(redshift_cluster_parameter_groups) {
   %redshift_cluster_parameter_groups {
      # Scenario 2
      Parameters exists
      Parameters is_list
      Parameters not empty
# Scenarios 3, 4 and 5
some Parameters[*] {
  ParameterName exists
  ParameterValue exists

  ParameterName == "require_ssl"
  ParameterValue in %REDSHIFT_SUPPORTED_TRUE_VALUES
}
Parameters [ ParameterName exists
  ParameterName == "require_ssl"
] {
  ParameterValue exists
  ParameterValue in %REDSHIFT_SUPPORTED_TRUE_VALUES
}
}

# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.REDSHIFT.PR.9 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ClusterParameterGroup:
  Type: AWS::Redshift::ClusterParameterGroup
  Properties:
    Description: Example parameter group
    ParameterGroupFamily: redshift-1.0
    Parameters:
      - ParameterName: require_ssl
        ParameterValue: true

Amazon Simple Storage Service (Amazon S3) controls

Topics

- [CT.S3.PR.1] Require an Amazon S3 bucket to have block public access settings configured
- [CT.S3.PR.2] Require an Amazon S3 bucket to have server access logging configured
- [CT.S3.PR.3] Require an Amazon S3 buckets to have versioning configured and a lifecycle policy
- [CT.S3.PR.4] Require an Amazon S3 bucket to have event notifications configured
- [CT.S3.PR.5] Require that an Amazon S3 bucket does not manage user access with an access control list (ACL)
- [CT.S3.PR.6] Require an Amazon S3 bucket to have lifecycle policies configured
- [CT.S3.PR.8] Require that Amazon S3 bucket requests use Secure Socket Layer
- [CT.S3.PR.9] Require that an Amazon S3 bucket has S3 Object Lock activated
- [CT.S3.PR.10] Require an Amazon S3 bucket to have server-side encryption configured using an AWS KMS key
• [CT.S3.PR.11] Require an Amazon S3 bucket to have versioning enabled
• [CT.S3.PR.12] Require an Amazon S3 access point to have a Block Public Access (BPA) configuration with all options set to true

[CT.S3.PR.1] Require an Amazon S3 bucket to have block public access settings configured

This control checks whether your Amazon Simple Storage Service (Amazon S3) bucket has a bucket-level Block Public Access (BPA) configuration.

• Control objective: Limit network access
• Implementation: AWS CloudFormation Guard Rule
• Control behavior: Proactive
• Resource types: AWS::S3::Bucket
• AWS CloudFormation guard rule: CT.S3.PR.1 rule specification

Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.S3.PR.1 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.S3.PR.1 example templates

Explanation

Block Public Access at the Amazon S3 bucket level provides controls to ensure that objects never have public access. Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, or both.

Unless you intend to have your S3 buckets publicly accessible, you should configure the bucket level Amazon S3 Block Public Access feature.

Usage considerations

• This control is incompatible with Amazon S3 buckets that require a public access configuration.
Remediation for rule failure

The parameters BlockPublicAcls, BlockPublicPolicy, IgnorePublicAcls, RestrictPublicBuckets must be set to true under the bucket-level PublicAccessBlockConfiguration.

The examples that follow show how to implement this remediation.

Amazon S3 Bucket - Example

Amazon S3 bucket with a bucket level Block Public Access configuration that ensures objects never have public access. The example is shown in JSON and in YAML.

JSON example

```json
{
  "S3Bucket": {
    "Type": "AWS::S3::Bucket",
    "Properties": {
      "PublicAccessBlockConfiguration": {
        "BlockPublicAcls": true,
        "BlockPublicPolicy": true,
        "IgnorePublicAcls": true,
        "RestrictPublicBuckets": true
      }
    }
  }
}
```

YAML example

```yaml
S3Bucket:
  Type: AWS::S3::Bucket
  Properties:
    PublicAccessBlockConfiguration:
      BlockPublicAcls: true
      BlockPublicPolicy: true
      IgnorePublicAcls: true
      RestrictPublicBuckets: true
```
CT.S3.PR.1 rule specification

# ###################################
##       Rule Specification        ##
####################################
#
# Rule Identifier:
#   s3_bucket_level_public_access_prohibited_check
#
# Description:
#   Checks whether Amazon Simple Storage Service (Amazon S3) buckets have a bucket-
#   level Block Public Access (BPA) configuration.
#
# Reports on:
#   AWS::S3::Bucket
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document does not contain any Amazon S3 bucket resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document contains an Amazon S3 bucket resource
#     And: 'PublicAccessBlockConfiguration' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or CloudFormation hook
document
#     And: The input document contains an Amazon S3 bucket resource
#     And: 'PublicAccessBlockConfiguration' has been provided
# And: 'BlockPublicAcls' or 'BlockPublicPolicy' or 'IgnorePublicAcls' or 'RestrictPublicBuckets'
# have not been provided
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon S3 bucket Resource
# And: 'PublicAccessBlockConfiguration' has been provided
# And: Any of 'BlockPublicAcls' or 'BlockPublicPolicy' or 'IgnorePublicAcls' or 'RestrictPublicBuckets'
# have not been provided
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon S3 bucket Resource
# And: 'PublicAccessBlockConfiguration' has been provided
# And: 'BlockPublicAcls' or 'BlockPublicPolicy' or 'IgnorePublicAcls' or 'RestrictPublicBuckets'
# have not all been set to bool(true)
# Then: PASS

# Constants
#
let S3_BUCKET_TYPE = "AWS::S3::Bucket"
let INPUT_DOCUMENT = this

# Assignments
#
let s3_buckets = Resources.*[ Type == %S3_BUCKET_TYPE ]

# Primary Rules
#
rule s3_bucket_level_public_access_prohibited_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %s3_buckets not empty {

    check(%s3_buckets.Properties)
    <<
}
[CT.S3.PR.1]: Require an Amazon S3 bucket to have block public access settings configured

[FIX]: The parameters 'BlockPublicAcls', 'BlockPublicPolicy', 'IgnorePublicAcls', 'RestrictPublicBuckets' must be set to true under the bucket-level 'PublicAccessBlockConfiguration'.

rule s3_bucket_level_public_access_prohibited_check when is_cfn_hook(%INPUT_DOCUMENT, %S3_BUCKET_TYPE) {
  check(%INPUT_DOCUMENT.%S3_BUCKET_TYPE.resourceProperties)
  <<
  [CT.S3.PR.1]: Require an Amazon S3 bucket to have block public access settings configured
  [FIX]: The parameters 'BlockPublicAcls', 'BlockPublicPolicy', 'IgnorePublicAcls', 'RestrictPublicBuckets' must be set to true under the bucket-level 'PublicAccessBlockConfiguration'.
  >>
}

# Parameterized Rules

rule check(s3_bucket) {
  %s3_bucket {
    # Scenario 2
    PublicAccessBlockConfiguration exists
    PublicAccessBlockConfiguration is_struct
    PublicAccessBlockConfiguration {
      # Scenario 3
      BlockPublicAcls exists
      BlockPublicPolicy exists
      IgnorePublicAcls exists
      RestrictPublicBuckets exists
    }
    # Scenarios 4 and 5
    BlockPublicAcls == true
    BlockPublicPolicy == true
    IgnorePublicAcls == true
    RestrictPublicBuckets == true
  }
}
CT.S3.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
S3Bucket:
  Type: AWS::S3::Bucket
  Properties:
    PublicAccessBlockConfiguration:
      BlockPublicAcls: true
      BlockPublicPolicy: true
      IgnorePublicAcls: true
      RestrictPublicBuckets: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
[CT.S3.PR.2] Require an Amazon S3 bucket to have server access logging configured

This control checks whether server access logging is enabled for your Amazon S3 bucket.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::S3::Bucket
- **AWS CloudFormation guard rule:** [CT.S3.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.S3.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.S3.PR.2 example templates](#)

**Explanation**

Server access logging provides detailed records of requests made to a bucket. Server access logs can assist in security and access audits.

**Remediation for rule failure**

Set a `LoggingConfiguration` on the S3 bucket and optionally set `DestinationBucketName` to an S3 bucket configured to receive S3 Access Logs.

The examples that follow show how to implement this remediation.
Amazon S3 Bucket - Example

Amazon S3 bucket with a server access logging configuration. The example is shown in JSON and in YAML.

JSON example

```
{
  "S3Bucket": {
    "Type": "AWS::S3::Bucket",
    "Properties": {
      "LoggingConfiguration": {
        "DestinationBucketName": {
          "Ref": "LoggingBucket"
        }
      }
    }
  }
}
```

YAML example

```
S3Bucket:
  Type: AWS::S3::Bucket
  Properties:
    LoggingConfiguration:
      DestinationBucketName: !Ref 'LoggingBucket'
```

CT.S3.PR.2 rule specification

```
# ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
##       Rule Specification        
# ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
# # Rule Identifier:
#   s3_bucket_logging_enabled_check
# 
```
# Description:
# This control checks whether server access logging is enabled for Amazon S3 buckets.
# 
# Reports on:
# AWS::S3::Bucket
# 
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
# 
# Rule Parameters:
# None
# 
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document does not contain any Amazon S3 bucket resources
#     Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an Amazon S3 bucket resource
#     And: 'LoggingConfiguration' has not been provided
#     Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an Amazon S3 bucket resource
#     And: 'LoggingConfiguration' has been provided
#     And: 'LoggingConfiguration.DestinationbucketName' has been provided with an empty string or non-valid local reference
#     Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an Amazon S3 bucket resource
#     And: 'LoggingConfiguration' has been provided
#     Then: PASS
# Scenario: 5
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
#     And: The input document contains an Amazon S3 bucket resource
#     And: 'LoggingConfiguration' has been provided
And: 'LoggingConfiguration.DestinationBucketName' has been provided with a non-empty string or valid local reference

Then: PASS

# Constants
#
let S3_BUCKET_TYPE = "AWS::S3::Bucket"
let INPUT_DOCUMENT = this
#
# Assignments
#
let s3_buckets = Resources.*[ Type == %{S3_BUCKET_TYPE} ]
#
# Primary Rules
#
rule s3_bucket_logging_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
    %s3_buckets not empty {
        check(%s3_buckets.Properties)
        <<
        [CT.S3.PR.2]: Require an Amazon S3 bucket to have server access logging configured
        [FIX]: Set a 'LoggingConfiguration' on the S3 Bucket and optionally set 'DestinationBucketName' to an S3 bucket configured to receive S3 Access Logs.
        >>
    }

rule s3_bucket_logging_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %S3_BUCKET_TYPE) {
    check(%INPUTDOCUMENT.%S3_BUCKET_TYPE.resourceProperties)
    <<
    [CT.S3.PR.2]: Require an Amazon S3 bucket to have server access logging configured
    [FIX]: Set a 'LoggingConfiguration' on the S3 bucket and optionally set 'DestinationBucketName' to an S3 bucket configured to receive S3 Access Logs.
    >>
}

# Parameterized Rules
#
rule check(s3_bucket) {
  %s3_bucket {
    # Scenario 2 and 4
    LoggingConfiguration exists
    LoggingConfiguration is_struct

    LoggingConfiguration {
      when DestinationBucketName exists {
        # Scenario 3, 4 and 5
        check_is_string_and_not_empty(DestinationBucketName) or
        check_local_references(%INPUT_DOCUMENT, DestinationBucketName, %S3_BUCKET_TYPE)
      }
    }
  }
}

# Utility Rules
#
rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /\A\s*\z/
  }
}

rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
  %reference_properties {
    'Fn::GetAtt' {
      query_for_resource(%doc, this[0], %referenced_resource_type)
      <<Local Stack reference was invalid>>
    }
  }
}
CT.S3.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  Bucket:
    Type: AWS::S3::Bucket
    Properties:
      LoggingConfiguration: {}

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  Bucket:
    Type: AWS::S3::Bucket
    Properties: {}
[CT.S3.PR.3] Require an Amazon S3 buckets to have versioning configured and a lifecycle policy

This control checks whether your Amazon Simple Storage Service (Amazon S3) version-enabled bucket has a lifecycle policy configured.

- **Control objective:** Optimize costs
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::S3::Bucket
- **AWS CloudFormation guard rule:** [CT.S3.PR.3 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.S3.PR.3 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.S3.PR.3 example templates](#)

**Explanation**

We recommend that you configure lifecycle rules on your Amazon S3 bucket, because these rules help you define actions that you want Amazon S3 to take during an object's lifetime.

**Usage considerations**

- This control applies only to Amazon S3 buckets with versioning enabled.

**Remediation for rule failure**

Configure versioning-enabled buckets with at least one active lifecycle rule.

The examples that follow show how to implement this remediation.
Amazon S3 Bucket - Example One

Amazon S3 bucket with versioning enabled and an active lifecycle rule. The example is shown in JSON and in YAML.

JSON example

```json
{
  "S3Bucket": {
    "Type": "AWS::S3::Bucket",
    "Properties": {
      "VersioningConfiguration": {
        "Status": "Enabled"
      },
      "LifecycleConfiguration": {
        "Rules": [
          {
            "Status": "Enabled",
            "ExpirationInDays": 1,
            "Id": "FirstRule"
          }
        ]
      }
    }
  }
}
```

YAML example

```yaml
S3Bucket:
  Type: AWS::S3::Bucket
  Properties:
    VersioningConfiguration:
      Status: Enabled
    LifecycleConfiguration:
      Rules:
        - Status: Enabled
          ExpirationInDays: 1
          Id: FirstRule
```
CT.S3.PR.3 rule specification

```plaintext
# #######################################################################
##       Rule Specification        ##
# #######################################################################
#
# Rule Identifier:
#   s3_version_lifecycle_policy_check
#
# Description:
#   Checks whether Amazon Simple Storage Service (Amazon S3) version-enabled buckets have lifecycle policy configured.
#
# Reports on:
#   AWS::S3::Bucket
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#           And: The input document does not contain any Amazon S3 bucket resources
#           Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#           And: The input document contains an Amazon S3 bucket Resource
#           And: The S3 bucket does not have versioning enabled (VersioningConfiguration is missing or
#                VersioningConfiguration.Status is set to Suspended)
#           Then: SKIP
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or CloudFormation hook document
#           And: The input document contains an Amazon S3 bucket Resource
```
# And: The S3 bucket has versioning enabled (VersioningConfiguration.Status is set to 'Enabled')
# And: 'LifecycleConfiguration' has been been provided and there are no 'Rules' with 'Status' set to 'Enabled'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon S3 bucket Resource
# And: The S3 bucket has versioning enabled (VersioningConfiguration.Status is set to 'Enabled')
# And: 'LifecycleConfiguration' has been been provided and there is at least one 'Rule' with 'Status' set to 'Enabled' in the 'LifecycleConfiguration'
# Then: PASS

# Constants
#
let S3_BUCKET_TYPE = "AWS::S3::Bucket"
let INPUT_DOCUMENT = this

# Assignments
#
let s3_buckets = Resources.*[ Type == %S3_BUCKET_TYPE ]

# Primary Rules
#
rule s3_version_lifecycle_policy_check when is_cfn_template(%INPUT_DOCUMENT) {
    %s3_buckets not empty {
        check(%s3_buckets.Properties)
        <<
        [CT.S3.PR.3]: Require an Amazon S3 buckets to have versioning configured and a lifecycle policy
        [FIX]: Configure versioning-enabled buckets with at least one active lifecycle rule.
        >>
    }
}
rule s3_version_lifecycle_policy_check when is_cfn_hook(%INPUT_DOCUMENT, %S3_BUCKET_TYPE) {
check(%INPUT_DOCUMENT.%S3_BUCKET_TYPE.resourceProperties)
<<
[CT.S3.PR.3]: Require an Amazon S3 buckets to have versioning configured and a lifecycle policy
[FIX]: Configure versioning-enabled buckets with at least one active lifecycle rule.
>>

# # Parameterized Rules
#
rule check(s3_bucket) {
  %s3_bucket [
    filter_s3_buckets_with_versioning_enabled(this)
  ] {
    # Scenario 2
    LifecycleConfiguration exists
    LifecycleConfiguration is_struct

    LifecycleConfiguration {
      # Scenario 3 and 4
      Rules exists
      Rules is_list
      Rules not empty

      some Rules[*] {
        Status exists
        Status == "Enabled"
      }
    }
  }
}

rule filter_s3_buckets_with_versioning_enabled(s3_bucket) {
  %s3_bucket {
    VersioningConfiguration exists
    VersioningConfiguration is_struct

    VersioningConfiguration {
      Status exists
      Status == "Enabled"
    }
  }
}
CT.S3.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
Bucket:
  Type: AWS::S3::Bucket
Properties:
  VersioningConfiguration:
    Status: Enabled
  LifecycleConfiguration:
    Rules:
      - Status: Enabled
        ExpirationInDays: 1
        Id: FirstRule

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
**[CT.S3.PR.4] Require an Amazon S3 bucket to have event notifications configured**

This control checks whether Amazon S3 events notifications are enabled on your Amazon S3 bucket.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::S3::Bucket
- **AWS CloudFormation guard rule:** [CT.S3.PR.4 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.S3.PR.4 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.S3.PR.4 example templates](#)

**Explanation**

By enabling event notifications, you receive alerts on your Amazon S3 buckets when specific events occur. For example, you can be notified of object creation, object removal, and object restoration.
These notifications can alert relevant teams to accidental or intentional modifications that may lead to unauthorized data access.

**Remediation for rule failure**

Set a NotificationConfiguration parameter on your bucket with one of EventBridgeConfiguration, LambdaConfigurations, QueueConfigurations or TopicConfigurations.

The examples that follow show how to implement this remediation.

**Amazon S3 Bucket - Example One**

Amazon S3 bucket with Amazon EventBridge notifications configured. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "S3Bucket": {
      "Type": "AWS::S3::Bucket",
      "Properties": {
         "NotificationConfiguration": {
            "EventBridgeConfiguration": {
               "EventBridgeEnabled": true
            }
         }
      }
   }
}
```

**YAML example**

```yaml
S3Bucket:
   Type: AWS::S3::Bucket
   Properties:
      NotificationConfiguration:
         EventBridgeConfiguration:
            EventBridgeEnabled: true
```
The examples that follow show how to implement this remediation.

Amazon S3 Bucket - Example Two

Amazon S3 bucket with SNS topic notifications configured. The example is shown in JSON and in YAML.

JSON example

```json
{
    "S3Bucket": {
        "Type": "AWS::S3::Bucket",
        "Properties": {
            "NotificationConfiguration": {
                "TopicConfigurations": [
                    {
                        "Topic": {
                            "Ref": "SnsTopic"
                        },
                        "Event": "s3:ReducedRedundancyLostObject"
                    }
                ]
            }
        }
    }
}
```

YAML example

```
S3Bucket:
  Type: AWS::S3::Bucket
  Properties:
    NotificationConfiguration:
      TopicConfigurations:
      - Topic: !Ref 'SnsTopic'
        Event: s3:ReducedRedundancyLostObject
```
CT.S3.PR.4 rule specification

```
# ###################################################################
##       Rule Specification        ##
# ###################################################################
#
# Rule Identifier:
# s3_event_notifications_enabled_check
#
# Description:
# This control checks whether Amazon S3 event notifications are enabled on an S3 bucket.
#
# Reports on:
# AWS::S3::Bucket
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document does not contain any Amazon S3 bucket resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon S3 bucket resource
# And: 'NotificationConfiguration' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or CloudFormation hook document
# And: The input document contains an Amazon S3 bucket resource
# And: 'NotificationConfiguration' has been provided
# And: At least one of 'EventBridgeConfiguration.EventBridgeEnabled', 'LambdaConfigurations', 'QueueConfigurations', or 'TopicConfigurations' have not been provided or provided as empty lists.
```
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an Amazon S3 bucket resource
# And: 'NotificationConfiguration' has been provided
# And: 'EventBridgeConfiguration.EventBridgeEnabled' is set to bool(true) or
# 'LambdaConfigurations',
# 'QueueConfigurations', or 'TopicConfigurations' have been provided with at
least one configuration
# Then: PASS
#
# Constants
#
let S3_BUCKET_TYPE = "AWS::S3::Bucket"
let INPUT_DOCUMENT = this
#
# Assignments
#
let s3_buckets = Resources.*[ Type == %S3_BUCKET_TYPE ]
#
# Primary Rules
#
rule s3_event_notifications_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%s3_buckets not empty {
    check(%s3_buckets.Properties)
    <<
    [CT.S3.PR.4]: Require an Amazon S3 bucket to have event notifications
    configured
    [FIX]: Set a 'NotificationConfiguration' parameter on your bucket with one
    of 'EventBridgeConfiguration', 'LambdaConfigurations', 'QueueConfigurations' or
    'TopicConfigurations.'
    >>
}

rule s3_event_notifications_enabled_check when is_cfn_hook(%INPUT_DOCUMENT,
%S3_BUCKET_TYPE) {
    check(%INPUT_DOCUMENT.%S3_BUCKET_TYPE.resourceProperties)
    <<
    [CT.S3.PR.4]: Require an Amazon S3 bucket to have event notifications
    configured
[FIX]: Set a 'NotificationConfiguration' parameter on your bucket with one of 'EventBridgeConfiguration', 'LambdaConfigurations', 'QueueConfigurations' or 'TopicConfigurations.'

```python
# Parameterized Rules

## Scenario 2

```
### Utility Rules

```plaintext
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
```

### CT.S3.PR.4 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

```plaintext
Resources:
  Bucket:
    Type: AWS::S3::Bucket
    Properties:
      NotificationConfiguration:
        EventBridgeConfiguration:
          EventBridgeEnabled: true
```

**FAIL Example** - Use this template to verify that the control prevents non-compliant resource creation.

```plaintext
Resources:
  Bucket:
    Type: AWS::S3::Bucket
    Properties:
      NotificationConfiguration: {}
```
[CT.S3.PR.5] Require that an Amazon S3 bucket does not manage user access with an access control list (ACL)

This control checks whether your Amazon Simple Storage Service (Amazon S3) bucket allows user permissions through access control lists.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::S3::Bucket
- **AWS CloudFormation guard rule:** [CT.S3.PR.5 rule specification]

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.S3.PR.5 rule specification]
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.S3.PR.5 example templates]

**Explanation**

ACLs are legacy access control mechanisms that predate IAM. Instead of ACLs, we recommend using IAM policies or Amazon S3 bucket policies to more easily manage access to your S3 buckets.

**Remediation for rule failure**

Manage access to Amazon S3 buckets with bucket resource policies and IAM identity policies instead.

The examples that follow show how to implement this remediation.

**Amazon S3 Bucket - Example**

Amazon S3 bucket that does not allow user permissions through access control lists by omitting the AccessControl property. The example is shown in JSON and in YAML.

**JSON example**
YAML example

S3Bucket:
  Type: AWS::S3::Bucket
  Properties: {}
# Scenario: 1
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document does not contain any Amazon S3 bucket resources
# Then: SKIP

# Scenario: 2
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an Amazon S3 bucket resource
# And: 'AccessControl' has been provided on the S3 bucket resource
# Then: FAIL

# Scenario: 3
# Given: The input document is an AWS CloudFormation or CloudFormation hook
document
# And: The input document contains an Amazon S3 bucket resource
# And: 'AccessControl' has not been provided on the S3 bucket resource
# Then: PASS

# Constants
#
let S3_BUCKET_TYPE = "AWS::S3::Bucket"
let INPUT_DOCUMENT = this

# Assignments
#
let s3_buckets = Resources.*[ Type == %S3_BUCKET_TYPE ]

# Primary Rules
#
rule s3_bucket_acl_prohibited_check when is_cfn_template(%INPUT_DOCUMENT)
%s3_buckets not empty {
  check(%s3_buckets.Properties)

  <<
  [CT.S3.PR.5]: Require that an Amazon S3 bucket does not manage user access with
  an access control list (ACL)
  [FIX]: Manage access to Amazon S3 buckets with bucket resource policies and IAM
  identity policies instead.

  >>
}
rule s3_bucket_acl_prohibited_check when is_cfn_hook(%INPUT_DOCUMENT, %S3_BUCKET_TYPE) {
    check(this.%S3_BUCKET_TYPE.resourceProperties)
    <<
    [CT.S3.PR.5]: Require that an Amazon S3 bucket does not manage user access with an access control list (ACL)
    [FIX]: Manage access to Amazon S3 buckets with bucket resource policies and IAM identity policies instead.
    >>
}

# Parameterized Rules
#
rule check(s3_bucket) {
    %s3_bucket {
        # Scenario 2 and 3
        AccessControl not exists
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

**CT.S3.PR.5 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
Bucket:
  Type: AWS::S3::Bucket
  Properties: {}
Configuring lifecycle rules on your Amazon S3 bucket defines actions that you want S3 to take during an object's lifetime. For example, you can transition objects to another storage class, archive them, or delete them after a specified period of time.

**Remediation for rule failure**

Configure at least one active lifecycle rule in `LifecycleConfiguration.Rules` by setting `Status` on a rule to `Enabled`.

The examples that follow show how to implement this remediation.

**Amazon S3 Bucket - Example**

Amazon S3 bucket configured with an active lifecycle rule. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "S3Bucket": {
    "Type": "AWS::S3::Bucket",
    "Properties": {
      "LifecycleConfiguration": {
        "Rules": [
          {
            "Status": "Enabled",
            "ExpirationInDays": 1,
            "Id": "FirstRule"
          }
        ]
      }
    }
  }
}
```

**YAML example**

```yaml
S3Bucket:
  Type: AWS::S3::Bucket
  Properties:
    LifecycleConfiguration:
      Rules:
      - Status: Enabled
        ExpirationInDays: 1
        Id: FirstRule
```
Properties:
    LifecycleConfiguration:
        Rules:
            - Status: Enabled
              ExpirationInDays: 1
              Id: FirstRule

CT.S3.PR.6 rule specification

# ####################################################################
##       Rule Specification        ##
# ####################################################################
#
# Rule Identifier:
#   s3_lifecycle_policy_check
#
# Description:
#   This control checks whether a lifecycle rule is configured for Amazon S3 buckets.
#
# Reports on:
#   AWS::S3::Bucket
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#       Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document does not contain any S3 bucket resources
#       Then: SKIP
#   Scenario: 2
#       Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#       And: The input document contains an S3 bucket resource
#       And: 'LifecycleConfiguration.Rules' has not been been provided or has been provided where 'Rules' is an
# empty list
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an S3 bucket resource
# And: The S3 bucket has versioning enabled (VersioningConfiguration.Status is
set to 'Enabled')
# And: 'LifecycleConfiguration.Rules' has been been provided as a non-empty list
# And: There are no 'Rules' with 'Status' set to 'Enabled' present in the
'LifecycleConfiguration'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an S3 bucket resource
# And: The S3 bucket has versioning enabled (VersioningConfiguration.Status is
set to 'Enabled')
# And: 'LifecycleConfiguration.Rules' has been been provided as a non-empty list
# And: There is at least one entry in 'LifecycleConfiguration.Rules' with
'Status' set to 'Enabled'
# Then: PASS

#
# Constants
#
let S3_BUCKET_TYPE = "AWS::S3::Bucket"
let INPUT_DOCUMENT = this

#
# Assignments
#
let s3_buckets = Resources.*[ Type == %S3_BUCKET_TYPE ]

#
# Primary Rules
#
rule s3_lifecycle_policy_check when is_cfn_template(%INPUT_DOCUMENT)
%s3_buckets not empty {
    check(%s3_buckets.Properties)
    <<
        [CT.S3.PR.6]: Require an Amazon S3 bucket to have lifecycle policies configured
        [FIX]: Configure at least one active lifecycle rule in
        'LifecycleConfiguration.Rules' by setting 'Status' on a rule to 'Enabled'.
    >>
}
rule s3_lifecycle_policy_check when is_cfn_hook(%INPUT_DOCUMENT, %S3_BUCKET_TYPE) {
    check(%INPUT_DOCUMENT.%S3_BUCKET_TYPE.resourceProperties)
    <=
        [CT.S3.PR.6]: Require an Amazon S3 bucket to have lifecycle policies configured
        [FIX]: Configure at least one active lifecycle rule in 'LifecycleConfiguration.Rules' by setting 'Status' on a rule to 'Enabled'.
    >>
} # # Parameterized Rules # rule check(s3_bucket) {
    %s3_bucket {
        # Scenario 2
        LifecycleConfiguration exists
        LifecycleConfiguration is_struct

        LifecycleConfiguration {
            # Scenario 3 and 4
            Rules exists
            Rules is_list
            Rules not empty

            some Rules[*] {
                Status exists
                Status == "Enabled"
            }
        }
    }
} # # Utility Rules # rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
   %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.S3.PR.6 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  S3Bucket:
   Type: AWS::S3::Bucket
   Properties:
     LifecycleConfiguration:
       Rules:
         - Status: Enabled
           ExpirationInDays: 1
           Id: FirstRule

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  S3Bucket:
   Type: AWS::S3::Bucket
   Properties:
     LifecycleConfiguration:
       Rules:
         - Status: Disabled
           ExpirationInDays: 1
           Id: FirstRule
[CT.S3.PR.8] Require that Amazon S3 bucket requests use Secure Socket Layer

This control checks whether Amazon S3 bucket policies require requests to use Secure Socket Layer (SSL).

- **Control objective:** Encrypt data in transit
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::S3::BucketPolicy
- **AWS CloudFormation guard rule:** [CT.S3.PR.8 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.S3.PR.8 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.S3.PR.8 example templates](#)

**Explanation**

Amazon S3 buckets should have policies that require all requests (Action: S3:) to accept transmission of data over HTTPS in the S3 resource policy only, as indicated by the condition key aws:SecureTransport.

**Remediation for rule failure**

Configure an Amazon S3 bucket policy statement that denies access to all principals and actions for the S3 bucket and bucket objects when a secure transport protocol is not in use.

The examples that follow show how to implement this remediation.

**Amazon S3 Bucket Policy - Example**

Amazon S3 bucket policy configured to deny all access to the bucket and bucket objects when transmission of data is not over HTTPS. The example is shown in JSON and in YAML.

**JSON example**

```
{
```

Proactive controls
"S3BucketPolicy": {
    "Type": "AWS::S3::BucketPolicy",
    "Properties": {
        "Bucket": {
            "Ref": "S3Bucket"
        },
        "PolicyDocument": {
            "Version": "2012-10-17",
            "Statement": [
                {
                    "Effect": "Deny",
                    "Action": "s3:*",
                    "Resource": [
                        {
                            "Fn::GetAtt": [
                                "S3Bucket",
                                "Arn"
                            ]
                        },
                        {
                            "Fn::Join": [
                                "",
                                [
                                    {
                                        "Fn::GetAtt": [
                                            "S3Bucket",
                                            "Arn"
                                        ]
                                    },
                                    "/*"
                                ]
                            ],
                            "Principal": "*",
                            "Condition": {
                                "Bool": {
                                    "aws:SecureTransport": "false"
                                }
                            }
                        }
                    ]
                }
            ]
        }
    }
}
YAML example

S3BucketPolicy:
  Type: AWS::S3::BucketPolicy
  Properties:
    Bucket: !Ref 'S3Bucket'
    PolicyDocument:
      Version: 2012-10-17
      Statement:
        - Effect: Deny
          Action: s3:*
          Resource:
            - !GetAtt 'S3Bucket.Arn'
            - !Join
              - ''
              - - !GetAtt 'S3Bucket.Arn'
            - /*
          Principal: '*'
          Condition:
            Bool:
              aws:SecureTransport: 'false'

CT.S3.PR.8 rule specification

# # ###################################
# #       Rule Specification       #
# # ###################################
#
# # Rule Identifier:
# #   s3_bucket_policy_ssl_requests_only_check
# #
# # Description:
# #   This control checks whether Amazon S3 bucket policies require requests to use Secure Socket Layer (SSL).
#
# Reports on:
#   AWS::S3::BucketPolicy
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any S3 bucket policies
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an S3 bucket policy
#     And: 'Policydocument' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an S3 bucket policy
#     And: 'Policydocument' does not include a statement that denies Principal ('*', AWS: '*)
#     all Actions ('s3:*', '*') over resource ('*' or bucketArn, bucketObjectArn) when the condition
#     "aws:SecureTransport" is "false"
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an S3 bucket policy
#     And: 'Policydocument' includes a statement that denies Principal ('*', AWS: '*)
#     all Actions ('s3:*', '*') over resource ('*' or bucketArn, bucketObjectArn) when the condition
#     "aws:SecureTransport" is "false"
#     Then: PASS
#
# Constants

Proactive controls
let S3_BUCKET_POLICY_TYPE = "AWS::S3::BucketPolicy"
let INPUT_DOCUMENT = this

let S3_BUCKET_ARN_PATTERN = /^arn:aws[a-z0-9-]*:s3:::[a-z0-9][a-z0-9.-]*[a-z0-9]/
let S3_BUCKET_OBJECT_ARN_PATTERN = /^arn:aws[a-z0-9-]*:s3:::[a-z0-9][a-z0-9.-]*[a-z0-9]$/

# Assignments
#
let s3_bucket_policies = Resources.*[ Type == %S3_BUCKET_POLICY_TYPE ]

# Primary Rules
#
rule s3_bucket_policy_ssl_requests_only_check when is_cfn_template(%INPUT_DOCUMENT)
  %s3_bucket_policies not empty {
    check(%s3_bucket_policies.Properties)
      %s3_bucket_policies not empty {
        [CT.S3.PR.8]: Require that Amazon S3 buckets request to use Secure Socket Layer
        [FIX]: Configure an Amazon S3 bucket policy statement that denies access
to all principals and actions for the S3 bucket and bucket objects when a secure
transport protocol is not in use.
      }
  }

rule s3_bucket_policy_ssl_requests_only_check when is_cfn_hook(%INPUT_DOCUMENT, %S3_BUCKET_POLICY_TYPE) {
  check(%INPUT_DOCUMENT.%S3_BUCKET_POLICY_TYPE.resourceProperties)
    [CT.S3.PR.8]: Require that Amazon S3 buckets request to use Secure Socket Layer
    [FIX]: Configure an Amazon S3 bucket policy statement that denies access
to all principals and actions for the S3 bucket and bucket objects when a secure
transport protocol is not in use.
    }

# Parameterized Rules
#
rule check(s3_bucket_policy) {
  %s3_bucket_policy {
    # Scenario 2
PolicyDocument exists
PolicyDocument is_struct

PolicyDocument {
    Statement exists
    Statement is_list or
    Statement is_struct

    #Scenario 3 and 4
    some Statement[*] {
        check_statement_ssl_requests_only(this)
    }
}
}
}

rule check_statement_ssl_requests_only(statement) {
    %statement{
        check_all_required_statement_properties(this)

        Effect == "Deny"
        Action[*] in ["s3:*", "*"]

        Principal == "" or
        Principal {
            AWS exists
            AWS == ""
        }

        Resource[*] == "" or
        check_resource_for_bucket_arns(Resource) or
        check_resource_for_bucket_arn.refs(Resource)

        Condition is_struct
        Condition == {
            "Bool": {
                "aws:SecureTransport": "false"
            }
        }
    }
}
}

rule check_all_required_statement_properties(statement) {

%statement {
    Effect exists
    Action exists
    Principal exists
    Condition exists
    Resource exists
}

rule check_resource_for_bucket_arns(resource) {
    %resource {
        this is_list
        this not empty
        some this[*] == %S3_BUCKET_ARN_PATTERN
        some this[*] == %S3_BUCKET_OBJECT_ARN_PATTERN
    }
}

rule check_resource_for_bucket_arnRefs(resource) {
    %resource {
        this is_list
        this not empty
        some this[*] {
            check_local_bucket_arn_reference(%INPUT_DOCUMENT, this, "AWS::S3::Bucket")
        }
        some this[*] {
            check_local_bucket_object_arn_reference(%INPUT_DOCUMENT, this, "AWS::S3::Bucket")
        }
    }
}

rule check_local_bucket_arn_reference(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            check_get_att_bucket_arn(this)
        }
    }
}

rule check_local_bucket_object_arn_reference(doc, reference_properties, referenced_resource_type) {
    %reference_properties {

'Fn::Join' {
    this is_list
    this not empty
    this[1][0] {
        'Fn::GetAtt' {
            check_get_att_bucket_arn(this)
        }
        this[1][1] == "/*"
    }
}

rule check_get_att_bucket_arn(get_att){
    %get_att {
        this is_list
        this not empty
        this[1] == "Arn"
        query_for_resource(%doc, this[0], %referenced_resource_type)
        <<Local Stack reference was invalid>>
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    %referenced_resource not empty
    %referenced_resource {
        Type == %referenced_resource_type
    }
}
CT.S3.PR.8 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:

S3Bucket:
  Type: AWS::S3::Bucket
  Properties:
    PublicAccessBlockConfiguration:
      BlockPublicAcls: true
      BlockPublicPolicy: true
      IgnorePublicAcls: true
      RestrictPublicBuckets: true

S3BucketPolicy:
  Type: AWS::S3::BucketPolicy
  Properties:
    Bucket:
      Ref: S3Bucket
    PolicyDocument:
      Version: 2012-10-17
      Statement:
        - Effect: Deny
          Action: s3:*
          Resource:
            - Fn::GetAtt:
              - S3Bucket
              - Arn
            - Fn::Join:
              - ''
              - - Fn::GetAtt:
                  - S3Bucket
                  - Arn
              - /*
            Principal: '*'
            Condition:
              Bool:
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
S3Bucket:
  Type: AWS::S3::Bucket
  Properties:
    PublicAccessBlockConfiguration:
      BlockPublicAcls: true
      BlockPublicPolicy: true
      IgnorePublicAcls: true
      RestrictPublicBuckets: true
S3BucketPolicy:
  Type: AWS::S3::BucketPolicy
  Properties:
    Bucket:
      Ref: S3Bucket
    PolicyDocument:
      Version: 2012-10-17
      Statement:
      - Effect: Allow
        Action: s3:*
        Resource:
          - Fn::GetAtt:
            - S3Bucket
              - Arn
          - Fn::Join:
            - ''
            - - Fn::GetAtt:
               - S3Bucket
                 - Arn
               - /*
    Principal:
      AWS:
      - Ref: AWS::AccountId
    Condition:
      Bool:
        aws:SecureTransport: 'false'
[CT.S3.PR.9] Require that an Amazon S3 bucket has S3 Object Lock activated

This control checks whether an Amazon Simple Storage Service (Amazon S3) bucket has been configured to use S3 Object Lock.

- **Control objective:** Protect data integrity
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::S3::Bucket
- **AWS CloudFormation guard rule:** [CT.S3.PR.9 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.S3.PR.9 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.S3.PR.9 example templates](#)

Explanation

S3 Object Lock allows you to store objects using a write-once-read-many (WORM) model. Object Lock can help prevent objects from being deleted or overwritten for a fixed amount of time, or indefinitely. You can use S3 Object Lock to meet regulatory requirements that require WORM storage, or to add an extra layer of protection against object changes and deletion.

ℹ️ Usage considerations

- When you create an Amazon S3 bucket with object lock activated, S3 automatically enables versioning for the bucket.

Remediation for rule failure

Set `ObjectLockEnabled` to `true`.

Proactive controls
The examples that follow show how to implement this remediation.

**S3 bucket - Example**

An Amazon S3 bucket configured with S3 object lock enabled. The example is shown in JSON and in YAML.

**JSON example**

```
{
  "Bucket": {
    "Type": "AWS::S3::Bucket",
    "Properties": {
      "ObjectLockEnabled": true
    }
  }
}
```

**YAML example**

```
Bucket:
  Type: AWS::S3::Bucket
  Properties:
    ObjectLockEnabled: true
```

**CT.S3.PR.9 rule specification**

```
# ####################################################################
##       Rule Specification        
# ####################################################################
#
# Rule Identifier:
#   s3_bucket_object_lock_enabled_check
#
# Description:
#   This control checks whether an Amazon Simple Storage Service (Amazon S3) bucket has been configured to use S3 Object Lock.
```
# Reports on:
#   AWS::S3::Bucket
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any S3 bucket resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an S3 bucket resource
#     And: 'ObjectLockEnabled' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an S3 bucket resource
#     And: 'ObjectLockEnabled' has been provided and set to a value other than bool(true)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an S3 bucket resource
#     And: 'ObjectLockEnabled' has been provided and set to bool(true)
#     Then: PASS

# Constants
#
let S3_BUCKET_TYPE = "AWS::S3::Bucket"
let INPUT_DOCUMENT = this

# Assignments
let s3_buckets = Resources.*[ Type == %S3_BUCKET_TYPE ]

# Primary Rules
#
rule s3_bucket_object_lock_enabled_check when is_cfn_template(%INPUT_DOCUMENT) {
    %s3_buckets not empty {
        check(%s3_buckets.Properties)
        <<
        [CT.S3.PR.9]: Require that an Amazon S3 bucket has S3 Object Lock activated
        [FIX]: Set 'ObjectLockEnabled' to 'true'.
        >>
    }
}

rule s3_bucket_object_lock_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %S3_BUCKET_TYPE) {
    check(this.%S3_BUCKET_TYPE.resourceProperties)
    <<
    [CT.S3.PR.9]: Require that an Amazon S3 bucket has S3 Object Lock activated
    [FIX]: Set 'ObjectLockEnabled' to 'true'.
    >>
}

# Parameterized Rules
#
rule check(s3_bucket) {
    %s3_bucket {
        # Scenario 2
        ObjectLockEnabled exists
        # Scenarios 3 and 4
        ObjectLockEnabled == true
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.S3.PR.9 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  Bucket:
    Type: AWS::S3::Bucket
    Properties:
      ObjectLockEnabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  Bucket:
    Type: AWS::S3::Bucket
    Properties:
      ObjectLockEnabled: false

[CT.S3.PR.10] Require an Amazon S3 bucket to have server-side encryption configured using an AWS KMS key

This control checks whether default server-side encryption is enabled on an Amazon S3 bucket using AWS KMS.
- **Control objective:** Encrypt data at rest
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::S3::Bucket
- **AWS CloudFormation guard rule:** [CT.S3.PR.10 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.S3.PR.10 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.S3.PR.10 example templates](#)

**Explanation**

Server-side encryption (SSE) is the encryption of data at its destination by the application or service that receives the data. Unless you specify otherwise, Amazon S3 buckets use SSE-S3 by default to encrypt objects. However, for added control, you can choose to configure buckets to use server-side encryption with AWS KMS keys (SSE-KMS) instead. Amazon S3 encrypts your data at the object level as it writes data to disks in AWS data centers, and then decrypts the data for you, when you require access to it.

**Remediation for rule failure**


The examples that follow show how to implement this remediation.

**S3 Bucket - Example**

An Amazon S3 bucket configured with AWS Key Management Service (AWS KMS) (SSE-KMS) default server-side encryption. The example is shown in JSON and in YAML.

**JSON example**

```json
{

}
```
"S3Bucket": {
    "Type": "AWS::S3::Bucket",
    "Properties": {
        "BucketEncryption": {
            "ServerSideEncryptionConfiguration": [
                {
                    "ServerSideEncryptionByDefault": {
                        "SSEAlgorithm": "aws:kms"
                    }
                }
            ]
        }
    }
}

YAML example

S3Bucket:
  Type: AWS::S3::Bucket
  Properties:
    BucketEncryption:
      ServerSideEncryptionConfiguration:
        - ServerSideEncryptionByDefault:
            SSEAlgorithm: aws:kms

CT.S3.PR.10 rule specification

# ###################################################################
##       Rule Specification        ##
###################################################################
#
# Rule Identifier:
#  s3_bucket_default_encryption_kms_check
#
# Description:
#  This control checks whether default server-side encryption is enabled on an Amazon S3 bucket using AWS KMS.
# Reports on:
#   AWS::S3::Bucket
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document does not contain any S3 bucket resources
#        Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document contains an S3 bucket resource
#        And: 'ServerSideEncryptionConfiguration' in 'BucketEncryption' has not been provided
#               or provided as an empty list
#        Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document contains an S3 bucket resource
#        And: 'ServerSideEncryptionConfiguration' in 'BucketEncryption' has been provided as
#               a non empty list
#        And: 'ServerSideEncryptionConfiguration' in 'BucketEncryption' does not contain an
#               encryption rule with a 'ServerSideEncryptionByDefault' configuration
#        Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#        And: The input document contains an S3 bucket resource
#        And: 'ServerSideEncryptionConfiguration' in 'BucketEncryption' has been provided as
#               a non empty list
#        And: 'ServerSideEncryptionConfiguration' in 'BucketEncryption' contains an encryption
# Scenario: 5

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an S3 bucket resource
And: 'ServerSideEncryptionConfiguration' in 'BucketEncryption' has been provided as
    a non empty list
And: 'ServerSideEncryptionConfiguration' in 'BucketEncryption' contains an encryption rule with
    a 'ServerSideEncryptionByDefault' configuration
And: For all encryption rules, 'SSEAlgorithm' in 'ServerSideEncryptionByDefault' is provided
    and set to 'aws:kms' or 'aws:kms:dsse'
Then: PASS

# Primary Rules

rule s3_bucket_default_encryption_kms_check when is_cfn_template(%INPUT_DOCUMENT)
%s3_buckets not empty {
    check(%s3_buckets.Properties)
    <=
        [CT.S3.PR.10]: Require an Amazon S3 bucket to have server-side encryption configured using an AWS KMS key
[FIX]: Set an encryption rule in
'BucketEncryption.ServerSideEncryptionConfiguration' with a
'ServerSideEncryptionByDefault.SSEAlgorithm' configuration of 'aws:kms' or
'aws:kms:dsse'
>
}

rule s3_bucket_default_encryption_kms_check when is_cfn_hook(%INPUT_DOCUMENT,
%S3_BUCKET_TYPE) {
  check(%INPUT_DOCUMENT.%S3_BUCKET_TYPE.resourceProperties)
  <<
  [CT.S3.PR.10]: Require an Amazon S3 bucket to have server-side encryption
  configured using an AWS KMS key
  [FIX]: Set an encryption rule in
  'BucketEncryption.ServerSideEncryptionConfiguration' with a
  'ServerSideEncryptionByDefault.SSEAlgorithm' configuration of 'aws:kms' or
  'aws:kms:dsse'
  >>
}

#
# Parameterized Rules
#
rule check(s3_bucket) {
  %s3_bucket {
    # Scenario 2
    BucketEncryption exists
    BucketEncryption is_struct

    BucketEncryption {
      ServerSideEncryptionConfiguration exists
      ServerSideEncryptionConfiguration is_list
      ServerSideEncryptionConfiguration not empty

      # Scenario 3, 4 and 5
      ServerSideEncryptionConfiguration[*] {
        ServerSideEncryptionByDefault exists
        ServerSideEncryptionByDefault is_struct

        ServerSideEncryptionByDefault {
          SSEAlgorithm exists
          SSEAlgorithm in %AUTHORIZED_SSE_ALGORITHMS
        }
      }
  }
}
CT.S3.PR.10 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
Bucket:
  Type: AWS::S3::Bucket
  Properties:
    BucketEncryption:
      ServerSideEncryptionConfiguration:
        - ServerSideEncryptionByDefault:
          SSEAlgorithm: aws:kms

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
[CT.S3.PR.11] Require an Amazon S3 bucket to have versioning enabled

This control checks whether an Amazon Simple Storage Service (Amazon S3) bucket has versioning enabled.

- **Control objective:** Improve availability
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::S3::Bucket
- **AWS CloudFormation guard rule:** [CT.S3.PR.11 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.S3.PR.11 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.S3.PR.11 example templates](#)

**Explanation**

Versioning keeps multiple variants of an object in the same Amazon S3 bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your S3 bucket. With versioning, you can recover more easily from unintended user actions and application failures.

**Usage considerations**

- If you have an unversioned bucket with an object expiration lifecycle configuration, and if you want to maintain the same permanent delete behavior when you enable versioning, you must set an expiration configuration for noncurrent objects. The noncurrent expiration configuration lifecycle manages deletion of noncurrent object versions in the...
version-enabled bucket. (A version-enabled bucket maintains one current, and zero or more noncurrent, object versions.)

Remediation for rule failure

Set the Status in VersionControl to Enabled.

The examples that follow show how to implement this remediation.

S3 Bucket - Example One

An Amazon S3 bucket with versioning enabled. The example is shown in JSON and in YAML.

JSON example

```
{
    "Bucket": {
        "Type": "AWS::S3::Bucket",
        "Properties": {
            "VersioningConfiguration": {
                "Status": "Enabled"
            }
        }
    }
}
```

YAML example

```
Bucket:
    Type: AWS::S3::Bucket
    Properties:
        VersioningConfiguration:
            Status: Enabled
```

CT.S3.PR.11 rule specification
# Rule Specification

## Rule Identifier:
- `s3_bucket_versioning_enabled_check`

## Description:
This control checks whether an Amazon Simple Storage Service (Amazon S3) bucket has versioning enabled.

## Reports on:
- `AWS::S3::Bucket`

## Evaluates:
- AWS CloudFormation, AWS CloudFormation hook

## Rule Parameters:
- None

## Scenarios:

### Scenario: 1
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
  - And: The input document does not contain any S3 bucket resources
  - Then: SKIP

### Scenario: 2
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
  - And: The input document contains an S3 bucket resource
  - And: 'VersioningConfiguration' has not been provided
  - Then: FAIL

### Scenario: 3
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
  - And: The input document contains an S3 bucket resource
  - And: 'VersioningConfiguration' has been provided
  - And: 'Status' in 'VersioningConfiguration' has not been provided or has been provided
    - and set to a value other than 'Enabled'
  - Then: FAIL

### Scenario: 4
- Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an S3 bucket resource
And: 'VersioningConfiguration' has been provided
And: 'Status' in 'VersioningConfiguration' has been provided and set to 'Enabled'
Then: PASS

# Constants
#
let S3_BUCKET_TYPE = "AWS::S3::Bucket"
let INPUT_DOCUMENT = this
#
# Assignments
#
let s3_buckets = Resources.*[ Type == %S3_BUCKET_TYPE ]
#
# Primary Rules
#
rule s3_bucket_versioning_enabled_check when is_cfn_template(%INPUT_DOCUMENT)
%s3_buckets not empty {
    check(%s3_buckets.Properties)
    <<
    [CT.S3.PR.11]: Require an Amazon S3 bucket to have versioning enabled
    [FIX]: Set the 'Status' in 'VersioningConfiguration' to Enabled.
    >>
}
rule s3_bucket_versioning_enabled_check when is_cfn_hook(%INPUT_DOCUMENT, %S3_BUCKET_TYPE) {
    check(%INPUT_DOCUMENT.%S3_BUCKET_TYPE.resourceProperties)
    <<
    [CT.S3.PR.11]: Require an Amazon S3 bucket to have versioning enabled
    [FIX]: Set the 'Status' in 'VersioningConfiguration' to Enabled.
    >>
}
#
# Parameterized Rules
#
rule check(s3_bucket) {
    %s3_bucket {
        # Scenario 2
VersioningConfiguration exists

# Scenarios 3 and 4
VersioningConfiguration is_struct
VersioningConfiguration {
    Status exists
    Status == "Enabled"
}
}

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.S3.PR.11 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  Bucket:
    Type: AWS::S3::Bucket
    Properties:
      VersioningConfiguration:
        Status: Enabled
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  Bucket:
    Type: AWS::S3::Bucket
    Properties: {}

[CT.S3.PR.12] Require an Amazon S3 access point to have a Block Public Access (BPA) configuration with all options set to true

This control checks whether an Amazon S3 access point has been configured with a Block Public Access (BPA) configuration that has all options set to true.

- **Control objective:** Enforce least privilege
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::S3::AccessPoint
- **AWS CloudFormation guard rule:** [CT.S3.PR.12 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.S3.PR.12 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.S3.PR.12 example templates](#)

Explanation

Amazon S3 access points support independent access settings that allow each access point to block public access. When you create an access point, you can specify block public access settings that apply to that access point. For any request made through an access point, Amazon S3 evaluates the block public access settings for that access point, the underlying bucket, and the bucket owner's account. If any of these settings indicate that the request should be blocked, Amazon S3 rejects the request.
Usage considerations

- This control is incompatible with Amazon S3 access points that require a public access configuration.
- Amazon S3 currently does not support changing an access point's block public access settings after the access point is created.
- Adding an Amazon S3 access point to a bucket doesn't change the bucket's behavior when you access the bucket directly through the bucket's name or Amazon Resource Name (ARN). See Configuring IAM policies for using access points in the Amazon S3 User Guide for information on options to configure the underlying bucket's policy for use with Amazon S3 access points.

Remediation for rule failure

In the PublicAccessBlockConfiguration field, set the values of BlockPublicAcls, BlockPublicPolicy, IgnorePublicAcls, and RestrictPublicBuckets to true, or omit the PublicAccessBlockConfiguration field to adopt the default value of true for these properties.

The examples that follow show how to implement this remediation.

Amazon S3 Access Point - Example

An Amazon S3 access point with a Block Public Access configuration that ensures public access requests by means of the access point are rejected. The example is shown in JSON and in YAML.

JSON example

```json
{
    "S3AccessPoint": {
        "Type": "AWS::S3::AccessPoint",
        "Properties": {
            "Bucket": "sample-bucket",
            "Name": "sample-access-point",
            "Policy": {
                "Version": "2012-10-17",
                "Statement": [
                    {
                        "Action": [...
```
YAML example

S3AccessPoint:
  Type: AWS::S3::AccessPoint
  Properties:
    Bucket: sample-bucket
    Name: sample-access-point
  Policy:
    Version: '2012-10-17'
    Statement:
      - Action:
        - s3:GetObject
        - s3:PutObject
        Effect: Allow
        Resource:
- !Sub 'arn:${AWS::Partition}:s3:${AWS::Region}:${AWS::AccountId}:accesspoint/sample-access-point/object/*'
  Principal:
    AWS: arn:aws:iam::123456789012:role/SampleRole
  PublicAccessBlockConfiguration:
    BlockPublicAcls: true
    BlockPublicPolicy: true
    IgnorePublicAcls: true
    RestrictPublicBuckets: true

---

CT.S3.PR.12 rule specification

```
#
# /// Rule Specification ///
#
#
#
# Rule Identifier:
# s3_access_point_public_access_prohibited_check
#
# Description:
# This control checks whether an S3 Amazon S3 access point has been configured with a
# Block Public Access (BPA) configuration that has all options set to true.
#
# Reports on:
# AWS::S3::AccessPoint
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
# document
# And: The input document does not contain any Amazon S3 access point resources
# Then: SKIP
# Scenario: 2
```
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon S3 access point resource
And: 'PublicAccessBlockConfiguration' has been provided as an empty struct
Then: FAIL
Scenario: 3
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon S3 access point resource
And: 'PublicAccessBlockConfiguration' has been provided
And: In 'PublicAccessBlockConfiguration', one or more of 'BlockPublicAcls', 'BlockPublicPolicy', 'IgnorePublicAcls' or 'RestrictPublicBuckets' have been provided and set to a value other than bool(true)
Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon S3 access point resource
And: 'PublicAccessBlockConfiguration' has not been provided
Then: PASS
Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an Amazon S3 access point resource
And: 'PublicAccessBlockConfiguration' has been provided
And: In 'PublicAccessBlockConfiguration', 'BlockPublicAcls', 'BlockPublicPolicy', 'IgnorePublicAcls' or 'RestrictPublicBuckets' have all been provided and set to bool(true)
Then: PASS

# Constants
let INPUT_DOCUMENT = this
let S3_ACCESS_POINT_TYPE = "AWS::S3::AccessPoint"

# Assignments
let s3_access_points = Resources.*[ Type == %S3_ACCESS_POINT_TYPE ]

# Proactive controls
2200
# Primary Rules

rule s3_access_point_public_access_prohibited_check when is_cfn_template(%INPUT_DOCUMENT) 
%s3_access_points not empty {
  check(%s3_access_points.Properties)
  <<
  [CT.S3.PR.12]: Require an Amazon S3 access point to have a Block Public Access (BPA) configuration with all options set to true
  [FIX]: In the PublicAccessBlockConfiguration field, set the values of BlockPublicAcls, BlockPublicPolicy, IgnorePublicAcls, and RestrictPublicBuckets to true, or
  omit the PublicAccessBlockConfiguration field to adopt the default value of true for these properties.
  >>
}

rule s3_access_point_public_access_prohibited_check when is_cfn_hook(%INPUT_DOCUMENT, %S3_ACCESS_POINT_TYPE) {
  check(%INPUT_DOCUMENT.%S3_ACCESS_POINT_TYPE.resourceProperties)
  <<
  [CT.S3.PR.12]: Require an Amazon S3 access point to have a Block Public Access (BPA) configuration with all options set to true
  [FIX]: In the PublicAccessBlockConfiguration field, set the values of BlockPublicAcls, BlockPublicPolicy, IgnorePublicAcls, and RestrictPublicBuckets to true, or omit the PublicAccessBlockConfiguration field to adopt the default value of true for these properties.
  >>
}

# Parameterized Rules

rule check(s3_access_point) {
  %s3_access_point {
    # Scenarios 2 and 4
    PublicAccessBlockConfiguration not exists or
    # Scenarios 3 and 5
    check_bpa_configuration(this)
  }
}

rule check_bpa_configuration(s3_access_point) {
%s3_access_point {
    PublicAccessBlockConfiguration is_struct
        PublicAccessBlockConfiguration {
            BlockPublicAcls exists
            BlockPublicPolicy exists
            IgnorePublicAcls exists
            RestrictPublicBuckets exists
            BlockPublicAcls == true
            BlockPublicPolicy == true
            IgnorePublicAcls == true
            RestrictPublicBuckets == true
        }
    }
}

# Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

**CT.S3.PR.12 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

**Resources:**

*S3Bucket:*

  Type: AWS::S3::Bucket
S3BucketPolicy:
  Type: AWS::S3::BucketPolicy
  Properties:
    Bucket:
      Ref: S3Bucket
  PolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Action: '*'
        Effect: Allow
        Resource:
          - Fn::GetAtt:
            - S3Bucket
            - Arn
          - Fn::Join:
            - ''
            - - Fn::GetAtt:
              - S3Bucket
              - Arn
            - /*
        Principal:
          AWS: '*'
    Condition:
      StringEquals:
        s3:DataAccessPointAccount:
          Ref: AWS::AccountId

AccessPointRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            AWS:
              Ref: AWS::AccountId
          Action: sts:AssumeRole
        Path: /
    Policies:
      - PolicyName: GetObjectPermissions
        PolicyDocument:
          Version: '2012-10-17'
          Statement:
            - Effect: Allow
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
S3Bucket:
  Type: AWS::S3::Bucket
S3BucketPolicy:
  Type: AWS::S3::BucketPolicy
Properties:
  Bucket:
    Ref: S3Bucket
PolicyDocument:
  Version: '2012-10-17'
  Statement:
    - Action: '*'
      Effect: Allow
      Resource:
        - Fn::GetAtt:
          - S3Bucket
          - Arn
        - Fn::Join:
          - ''
            - - Fn::GetAtt:
              - S3Bucket
              - Arn
            - /*
      Principal:
        AWS: '*'
      Condition:
        StringEquals:
          s3:DataAccessPointAccount:
            Ref: AWS::AccountId
AccessPointRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          AWS:
            Ref: AWS::AccountId
        Action: sts:AssumeRole
      Path: /
    Policies:
      - PolicyName: GetObjectPermissions
        PolicyDocument:
          Version: '2012-10-17'
          Statement:
            - Effect: Allow
              Action:
                - s3:GetObject
Resource:
  - Fn::Sub: arn:${AWS::Partition}:s3:${AWS::Region}:
    ${AWS::AccountId}:accesspoint/example-access-point/object/*
S3AccessPoint:
  Type: AWS::S3::AccessPoint
  Properties:
    Bucket:
      Ref: S3Bucket
    Name: example-access-point
  Policy:
    Version: '2012-10-17'
    Statement:
      - Action:
        - s3:GetObject
        - s3:PutObject
        Effect: Allow
        Resource:
          - Fn::Sub: arn:${AWS::Partition}:s3:${AWS::Region}:
            ${AWS::AccountId}:accesspoint/example-access-point/object/*
    Principal:
      AWS:
        Fn::GetAtt:
          - AccessPointRole
          - Arn
  PublicAccessBlockConfiguration:
    BlockPublicAcls: false
    BlockPublicPolicy: false
    IgnorePublicAcls: false
    RestrictPublicBuckets: false

Amazon SageMaker controls

Topics

- [CT.SAGEMAKER.PR.1] Require an Amazon SageMaker notebook instance to prevent direct internet access
- [CT.SAGEMAKER.PR.2] Require Amazon SageMaker notebook instances to be deployed within a custom Amazon VPC
- [CT.SAGEMAKER.PR.3] Require Amazon SageMaker notebook instances to have root access disallowed
[CT.SAGEMAKER.PR.1] Require an Amazon SageMaker notebook instance to prevent direct internet access

This control checks that direct internet access is not allowed for an Amazon SageMaker notebook instance.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::SageMaker::NotebookInstance
- **AWS CloudFormation guard rule:** [CT.SAGEMAKER.PR.1 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.SAGEMAKER.PR.1 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.SAGEMAKER.PR.1 example templates](#)

**Explanation**

When you configure your SageMaker notebook instance without a VPC, direct internet access is allowed for your instance, by default. Instead, you should configure your instance with a VPC and change the default setting to **Disable - Access the internet through a VPC.**

To train or host models from a notebook, you require internet access. To set up internet access, make sure that your VPC has a NAT gateway, and that your security group allows outbound connections.

Ensure that access to your SageMaker configuration is limited to authorized users. Restrict users' IAM permissions for modifying SageMaker settings and resources.

**Usage considerations**

- To set up outbound internet access for Amazon SageMaker notebook instances when this control is activated - First, associate the notebook instance with a private subnet that has access to the internet, through a default route to a NAT gateway instance. Also, be
sure that the security groups assigned to the notebook instance, and the network access control list (NACL) of the private subnet, allow outbound traffic to the internet.

**Remediation for rule failure**

Set `DirectInternetAccess` to `Disabled` and provide a `SubnetId` and one or more `SecurityGroupIds`.

The examples that follow show how to implement this remediation.

**Amazon SageMaker Notebook Instance - Example**

Amazon SageMaker notebook instance configured with direct internet access deactivated. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "SageMakerNoteBookInstance": {
        "Type": "AWS::SageMaker::NotebookInstance",
        "Properties": {
            "InstanceType": "ml.t2.medium",
            "RoleArn": {
                "Fn::GetAtt": [
                    "ExecutionRole",
                    "Arn"
                ]
            },
            "DirectInternetAccess": "Disabled",
            "SubnetId": {
                "Ref": "Subnet"
            },
            "SecurityGroupIds": [
                {
                    "Fn::GetAtt": [
                        "SecurityGroup",
                        "GroupId"
                    ]
                }
            ]
        }
    }
}
```
YAML example

SageMakerNoteBookInstance:
  Type: AWS::SageMaker::NotebookInstance
  Properties:
    InstanceType: ml.t2.medium
    RoleArn: !GetAtt 'ExecutionRole.Arn'
    DirectInternetAccess: Disabled
    SubnetId: !Ref 'Subnet'
    SecurityGroupIds:
      - !GetAtt 'SecurityGroup.GroupId'

CT.SAGEMAKER.PR.1 rule specification

# ####################################################################
## Rule Specification     ##
# ####################################################################
#
# Rule Identifier:
#   sagemaker_notebook_no_direct_internet_access_check
# Description:
#   This control checks that direct internet access is not allowed for an Amazon SageMaker notebook instance.
# Reports on:
#   AWS::SageMaker::NotebookInstance
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
# Rule Parameters:
#   None
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any SageMaker notebook instance resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an SageMaker notebook instance resource
# And: 'DirectInternetAccess' has not been provided on the SageMaker notebook instance resource
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an SageMaker notebook instance resource
# And: 'DirectInternetAccess' has been provided on the SageMaker notebook instance resource
# And: 'DirectInternetAccess' is set to 'Enabled'
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an SageMaker notebook instance resource
# And: 'DirectInternetAccess' has been provided on the SageMaker notebook instance resource
# And: 'DirectInternetAccess' is set to 'Disabled'
# And: 'SecurityGroupIds' have been provided as a non-empty list with non-empty strings or valid local references
# And: 'SubnetId' has been provided as an empty string or non-valid local reference
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an SageMaker notebook instance resource
# And: 'DirectInternetAccess' has been provided on the SageMaker notebook instance resource
# And: 'DirectInternetAccess' is set to 'Disabled'
# And: 'SubnetId' has been provided as a non-empty string or valid local reference
# And: 'SecurityGroupIds' have been provided as an empty list or a list that contains empty string values or
non-valid local references
Then: FAIL
 Scenario: 6
 Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
 And: The input document contains an SageMaker notebook instance resource
 And: 'DirectInternetAccess' has been provided on the SageMaker notebook instance resource
 And: 'DirectInternetAccess' is set to 'Disabled'
 And: 'SecurityGroupIds' have been provided as a non-empty list with non-empty strings or valid local references
 And: 'SubnetId' has been provided as a non-empty string or valid local reference
 Then: PASS

Constants

let SAGEMAKER_NOTEBOOK_INSTANCE_TYPE = "AWS::SageMaker::NotebookInstance"
let INPUT_DOCUMENT = this

Assignments

let sagemaker_notebook_instances = Resources.*[ Type == %SAGEMAKER_NOTEBOOK_INSTANCE_TYPE ]

Primary Rules

rule sagemaker_notebook_no_direct_internet_access_check when is_cfn_template(this)
{sagemaker_notebook_instances not empty {
  check(sagemaker_notebook_instances.Properties)
  <<<
  [CT.SAGEMAKER.PR.1]: Require an Amazon SageMaker notebook instance to prevent direct internet access
  [FIX]: Set 'DirectInternetAccess' to 'Disabled' and provide a 'SubnetId' and one or more 'SecurityGroupIds'.
  >>
}

rule sagemaker_notebook_no_direct_internet_access_check when is_cfn_hook(%INPUT_DOCUMENT, %SAGEMAKER_NOTEBOOK_INSTANCE_TYPE) {
check(%INPUT_DOCUMENT.%SAGEMAKER_NOTEBOOK_INSTANCE_TYPE.resourceProperties)
<<
[CT.SAGEMAKER.PR.1]: Require an Amazon SageMaker notebook instance to prevent
direct internet access
[FIX]: Set 'DirectInternetAccess' to 'Disabled' and provide a 'SubnetId' and
one or more 'SecurityGroupIds'.
>>
}
#
# Parameterized Rules
#
rule check(sagemaker_notebook_instances) {
  %sagemaker_notebook_instances {
    # Scenario 2
    DirectInternetAccess exists

    # Scenario 3
    DirectInternetAccess is_string
    DirectInternetAccess == "Disabled"

    # Scenario 4,5 and 6
    check_is_string_and_not_empty(SubnetId) or
    check_local_references(%INPUT_DOCUMENT, SubnetId, "AWS::EC2::Subnet")

    SecurityGroupIds exists
    SecurityGroupIds is_list
    SecurityGroupIds not empty

    SecurityGroupIds[*] {
      check_is_string_and_not_empty(this) or
      check_local_references(%INPUT_DOCUMENT, this, "AWS::EC2::SecurityGroup")
    }
  }
}
#
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
CT.SAGEMAKER.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
VPC:
  Type: AWS::EC2::VPC
  Properties:
    CidrBlock: 10.0.0.0/16
    EnableDnsSupport: 'true'
    EnableDnsHostnames: 'true'

Subnet:
  Type: AWS::EC2::Subnet
  Properties:
    VpcId:
      Ref: VPC
    CidrBlock: 10.0.0.0/24
    AvailabilityZone:
      Fn::Select:
        - 0
        - Fn::GetAZs: ''

SecurityGroup:
  Type: AWS::EC2::SecurityGroup
  Properties:
    GroupDescription: Notebook SG1
    VpcId:
      Ref: VPC

ExecutionRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service:
              - sagemaker.amazonaws.com
          Action:
            - sts:AssumeRole
          Path: /
        - Fn::Sub: arn:${AWS::Partition}:iam::aws:policy/AmazonSageMakerFullAccess

SageMakerNoteBookInstance:
  Type: AWS::SageMaker::NotebookInstance
  Properties:
    InstanceType: ml.t2.medium
    RoleArn:
      Fn::GetAtt:
        - ExecutionRole
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
ExecutionRole:
  Type: AWS::IAM::Role
Properties:
  AssumeRolePolicyDocument:
    Version: '2012-10-17'
    Statement:
      - Effect: Allow
        Principal:
          Service:
            - sagemaker.amazonaws.com
        Action:
          - sts:AssumeRole
      Path: /
  ManagedPolicyArns:
    - Fn::Sub: arn:${AWS::Partition}:iam::aws:policy/AmazonSageMakerFullAccess

SageMakerNotebookInstance:
  Type: AWS::SageMaker::NotebookInstance
Properties:
  InstanceType: ml.t2.medium
  RoleArn:
    Fn::GetAtt:
      - ExecutionRole
      - Arn
  DirectInternetAccess: Enabled
[CT.SAGEMAKER.PR.2] Require Amazon SageMaker notebook instances to be deployed within a custom Amazon VPC

This control checks whether an Amazon SageMaker notebook instance is configured to launch within a custom Amazon VPC.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::SageMaker::NotebookInstance
- **AWS CloudFormation guard rule:** [CT.SAGEMAKER.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.SAGEMAKER.PR.2 rule specification](#)
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.SAGEMAKER.PR.2 example templates](#)

Explanation

As a best practice, we recommend that you keep your resources contained inside a VPC whenever possible, to ensure the secure network protection of your infrastructure.

Remediation for rule failure

Set SubnetId to the identifier of an Amazon EC2 subnet and set SecurityGroupIds to a list containing one or more EC2 security group identifiers.

The examples that follow show how to implement this remediation.

Amazon SageMaker Notebook Instance - Example

Amazon SageMaker notebook instance configured with Amazon VPC connectivity. The example is shown in JSON and in YAML.

**JSON example**

---

Proactive controls
YAML example

```
NotebookInstance:
  Type: AWS::SageMaker::NotebookInstance
  Properties:
    InstanceType: ml.t2.large
    RoleArn: !GetAtt 'ExecutionRole.Arn'
    SubnetId: !GetAtt 'Subnet.SubnetId'
    SecurityGroupIds:
      - !GetAtt 'SecurityGroup.GroupId'
```

Proactive controls
# CT.SAGEMAKER.PR.2 rule specification

## Rule Specification

### Rule Identifier:
- `sagemaker_notebook_instance_inside_vpc_check`

### Description:
This control checks whether an Amazon SageMaker notebook instance is configured to launch within a custom Amazon VPC.

### Reports on:
- `AWS::SageMaker::NotebookInstance`

### Rule Parameters:
- None

### Scenarios:

1. **Scenario: 1**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   - And: The input document does not contain any SageMaker notebook instance resources
   - Then: SKIP

2. **Scenario: 2**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   - And: The input document contains a SageMaker notebook instance resource
   - And: 'SubnetId' has not been provided or provided as an empty string or non-valid local reference
   - And: 'SecurityGroupIds' has not been provided or provided as an empty list or a list that contains empty string values or non-valid local references
   - Then: FAIL

3. **Scenario: 3**
   - Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   - And: The input document contains a SageMaker notebook instance resource

---

Proactive controls
And: 'SubnetId' has been provided as a non-empty string or valid local reference
And: 'SecurityGroupIds' has not been provided or provided as an empty list or a list that contains empty string
   Then: FAIL
Scenario: 4
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   And: The input document contains a SageMaker notebook instance resource
   And: 'SubnetId' has not been provided or provided as an empty string or non-valid local reference
   And: 'SecurityGroupIds' have been provided as a non-empty list containing non-empty string values or
   valid local references
   Then: FAIL
Scenario: 5
Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
   And: The input document contains a SageMaker notebook instance resource
   And: 'SubnetId' has been provided as a non-empty string or valid local reference
   And: 'SecurityGroupIds' have been provided as a list containing one or more non-empty string values or
   valid local references
   Then: PASS

# Constants

let SAGEMAKER_NOTEBOOK_INSTANCE_TYPE = "AWS::SageMaker::NotebookInstance"
let INPUT_DOCUMENT = this

# Assignments

let sagemaker_notebook_instances = Resources.*[ Type == %SAGEMAKER_NOTEBOOK_INSTANCE_TYPE ]

# Primary Rules

rule sagemaker_notebook_instance_inside_vpc_check when is_cfn_template(%INPUT_DOCUMENT)
%sagemaker_notebook_instances not empty {
    check(%sagemaker_notebook_instances.Properties) <<
    [CT.SAGEMAKER.PR.2]: Require Amazon SageMaker notebook instances to be deployed within a custom Amazon VPC
    [FIX]: Set 'SubnetId' to the identifier of an Amazon EC2 subnet and set 'SecurityGroupIds' to a list containing one or more EC2 security group identifiers.
}>

rule sagemaker_notebook_instance_inside_vpc_check when is_cfn_hook(%INPUT_DOCUMENT, %SAGEMAKER_NOTEBOOK_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%SAGEMAKER_NOTEBOOK_INSTANCE_TYPE.resourceProperties) <<
    [CT.SAGEMAKER.PR.2]: Require Amazon SageMaker notebook instances to be deployed within a custom Amazon VPC
    [FIX]: Set 'SubnetId' to the identifier of an Amazon EC2 subnet and set 'SecurityGroupIds' to a list containing one or more EC2 security group identifiers.
}>

rule check(sagemaker_notebook_instance) {
    %sagemaker_notebook_instance {
        # Scenario 2
        SubnetId exists

        # Scenario 3, 4 and 5
        check_is_string_and_not_empty(SubnetId) or
        check_local_references(%INPUT_DOCUMENT, SubnetId, "AWS::EC2::Subnet")

        SecurityGroupIds exists
        SecurityGroupIds is_list
        SecurityGroupIds not empty

        SecurityGroupIds[*] {
            check_is_string_and_not_empty(this) or
            check_local_references(%INPUT_DOCUMENT, this, "AWS::EC2::SecurityGroup")
        }
    }
}

# Utility Rules

Proactive controls
# is_cfn_template(doc) {
%doc {
    AWSTemplateFormatVersion exists or
    Resources exists
}
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
%doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
%value {
    this is_string
    this != /\A\s*\z/
}
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
%reference_properties {
    'Fn::GetAtt' {
        query_for_resource(%doc, this[0], %referenced_resource_type)
        <<Local Stack reference was invalid>>
    } or Ref {
        query_for_resource(%doc, this, %referenced_resource_type)
        <<Local Stack reference was invalid>>
    }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    %referenced_resource not empty
    %referenced_resource {
        Type == %referenced_resource_type
    }
}
**CT.SAGEMAKER.PR.2 example templates**

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

**PASS Example** - Use this template to verify a compliant resource creation.

```yaml
Resources:
  NotebookInstance:
    Type: AWS::SageMaker::NotebookInstance
    Properties:
      InstanceType: ml.t2.large
      RoleArn: example-role-arn
      SubnetId: example-subnet-id
      SecurityGroupIds:
        - example-sg-id
```

**FAIL Example** - Use this template to verify that the control prevents non-compliant resource creation.

```yaml
Resources:
  NotebookInstance:
    Type: AWS::SageMaker::NotebookInstance
    Properties:
      InstanceType: ml.t2.large
      RoleArn: example-role-arn
```

**[CT.SAGEMAKER.PR.3] Require Amazon SageMaker notebook instances to have root access disallowed**

This control checks whether Amazon SageMaker notebook instances allow root access.

- **Control objective**: Enforce least privilege
- **Implementation**: AWS CloudFormation guard rule
- **Control behavior**: Proactive
Resource types: AWS::SageMaker::NotebookInstance

AWS CloudFormation guard rule: CT.SAGEMAKER.PR.3 rule specification

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.SAGEMAKER.PR.3 rule specification
- For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: CT.SAGEMAKER.PR.3 example templates

Explanation

By default, when you create a notebook instance, users that log into that notebook instance have root access. Because users with root access have administrator privileges, users have access to edit all files on a notebook instance with root access enabled. In adherence to the principle of least privilege, for security reasons, we recommend that you restrict root access to instance resources whenever possible, to avoid unintentional over-provisioning of permissions.

Usage considerations

- Lifecycle configurations associated with an Amazon SageMaker notebook instance always run with root access, even if you turn off root access for users.

Remediation for rule failure

Set RootAccess to Disabled.

The examples that follow show how to implement this remediation.

Amazon SageMaker Notebook Instance - Example

Amazon SageMaker notebook instance configured with root access turned off. The example is shown in JSON and in YAML.

JSON example

```json
{
}
```
YAML example

NotebookInstance:
  Type: AWS::SageMaker::NotebookInstance
  Properties:
    InstanceType: ml.t2.large
    RoleArn: !GetAtt 'ExecutionRole.Arn'
    RootAccess: Disabled

CT.SAGEMAKER.PR.3 rule specification

# #####################################################################
## Rule Specification   ##
# #####################################################################
#
# Rule Identifier:
#  sagemaker_notebook_instance_root_access_check
#
# Description:
#  This control checks whether Amazon SageMaker notebook instances allow root access.
#
# Reports on:
#  AWS::SageMaker::NotebookInstance
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any SageMaker notebook instance resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a SageMaker notebook instance resource
#     And: 'RootAccess' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a SageMaker notebook instance resource
#     And: 'RootAccess' has been provided and is set to a value other than 'Disabled'
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains a SageMaker notebook instance resource
#     And: 'RootAccess' has been provided and is set to 'Disabled'
#     Then: PASS
#
# # Constants
#
let SAGEMAKER_NOTEBOOK_INSTANCE_TYPE = "AWS::SageMaker::NotebookInstance"
let INPUT_DOCUMENT = this
#
# # Assignments
#
let sagemaker_notebook_instances = Resources.*[ Type == %SAGEMAKER_NOTEBOOK_INSTANCE_TYPE ]
# Primary Rules

rule sagemaker_notebook_instance_root_access_check when is_cfn_template(%INPUT_DOCUMENT)
%sagemaker_notebook_instances
not empty {
    check(%sagemaker_notebook_instances.Properties)
    <<
    [CT.SAGEMAKER.PR.3]: Require Amazon SageMaker notebook instances to have root access disallowed
    [FIX]: Set 'RootAccess' to 'Disabled'.
    >>
}

rule sagemaker_notebook_instance_root_access_check when is_cfn_hook(%INPUT_DOCUMENT,
%SAGEMAKER_NOTEBOOK_INSTANCE_TYPE) {
    check(%INPUT_DOCUMENT.%SAGEMAKER_NOTEBOOK_INSTANCE_TYPE.resourceProperties)
    <<
    [CT.SAGEMAKER.PR.3]: Require Amazon SageMaker notebook instances to have root access disallowed
    [FIX]: Set 'RootAccess' to 'Disabled'.
    >>
}

rule check(sagemaker_notebook_instance) {
    %sagemaker_notebook_instance {
        # Scenarios 2, 3 and 4
        RootAccess exists
        RootAccess == "Disabled"
    }
}

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or Resources exists
    }
}
rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.SAGEMAKER.PR.3 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
NotebookInstance:
    Type: AWS::SageMaker::NotebookInstance
    Properties:
        InstanceType: ml.t2.large
        RoleArn: example-role-arn
        RootAccess: Disabled

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
NotebookInstance:
    Type: AWS::SageMaker::NotebookInstance
    Properties:
        InstanceType: ml.t2.large
        RoleArn: example-role-arn
        RootAccess: Enabled

Amazon Simple Queue Service (Amazon SQS) controls

Topics
- [CT.SQS.PR.1] Require any Amazon SQS queue to have a dead-letter queue configured
• [CT.SQS.PR.2] Require any Amazon SQS queue to have encryption at rest configured

[CT.SQS.PR.1] Require any Amazon SQS queue to have a dead-letter queue configured

This control checks whether an Amazon SQS queue is configured with a dead-letter queue.

• Control objective: Improve resiliency
• Implementation: AWS CloudFormation Guard Rule
• Control behavior: Proactive
• Resource types: AWS::SQS::Queue
• AWS CloudFormation guard rule: CT.SQS.PR.1 rule specification

Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.SQS.PR.1 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.SQS.PR.1 example templates

Explanation

The main task of a dead-letter queue is to handle the lifecycle of unconsumed messages. A dead-letter queue lets you set aside and isolate messages that can’t be processed correctly, so you can determine why their processing didn’t succeed.

⚠️ Usage considerations

• This control applies only to Amazon SQS queues that are not configured as a dead-letter queue with a RedriveAllowPolicy property.

Remediation for rule failure

Create a RedrivePolicy with a deadLetterTargetArn value that sets the ARN of an Amazon SQS dead-letter queue. For Amazon SQS dead-letter queues, instead provide a redrive configuration in the RedriveAllowPolicy property.
The examples that follow show how to implement this remediation.

**Amazon SQS Queue - Example**

Amazon SQS queue configured to send messages to a dead-letter queue, if the messages can't be processed (consumed) successfully. The example is shown in JSON and in YAML.

**JSON example**

```json
{
  "SQSQueue": {
    "Type": "AWS::SQS::Queue",
    "Properties": {
      "RedrivePolicy": {
        "deadLetterTargetArn": {
          "Fn::GetAtt": [
            "DLQQueue",
            "Arn"
          ],
          "maxReceiveCount": 3
        }
      }
    }
  }
}
```

**YAML example**

```yaml
SQSQueue:
  Type: AWS::SQS::Queue
  Properties:
    RedrivePolicy:
      deadLetterTargetArn: !GetAtt 'DLQQueue.Arn'
      maxReceiveCount: 3
```

**CT.SQS.PR.1 rule specification**
# Rule Specification

## Rule Identifier:

sqs_dlq_check

## Description:

This control checks whether an Amazon SQS queue is configured with a dead-letter queue.

## Reports on:

AWS::SQS::Queue

## Evaluates:

AWS CloudFormation, AWS CloudFormation hook

## Rule Parameters:

None

## Scenarios:

### Scenario: 1

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document does not contain any SQS queue resources
Then: SKIP

### Scenario: 2

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an SQS queue resource
And: 'RedriveAllowPolicy' has been provided on the SQS queue
And: 'RedriveAllowPolicy.redrivePermission' is set to 'allowAll' or 'byQueue'
Then: SKIP

### Scenario: 3

Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
And: The input document contains an SQS queue resource
And: 'RedriveAllowPolicy' has not been provided on the SQS queue or 'RedriveAllowPolicy.redrivePermission' has been provided and is set to a value other than 'allowAll' or 'byQueue'
And: 'RedrivePolicy' has not been provided
Then: FAIL

### Scenario: 4
# Proactive controls

2231

AWS Control Tower

User Guide
require any Amazon SQS queue to have a dead-letter queue configured

[Fix]: Create a 'RedrivePolicy' with a 'deadLetterTargetArn' value that's set to the ARN of an Amazon SQS dead-letter queue. For Amazon SQS dead-letter queues, instead provide a redrive configuration in the 'RedriveAllowPolicy' property.

```
rule sqs_dlq_check when is_cfn_hook(%INPUT_DOCUMENT, %SQS_QUEUE_TYPE) {
  check(%INPUT_DOCUMENT.%SQS_QUEUE_TYPE.resourceProperties)
  <<
  require any Amazon SQS queue to have a dead-letter queue configured
  [Fix]: Create a 'RedrivePolicy' with a 'deadLetterTargetArn' value that's set to the ARN of an Amazon SQS dead-letter queue. For Amazon SQS dead-letter queues, instead provide a redrive configuration in the 'RedriveAllowPolicy' property.
  >>
}
```

## Parameterized Rules

### rule check(sqs_queues) {

**%sqs_queues** [
  # Scenario 2
  RedriveAllowPolicy not exists or
  filter_is_not_dlq(this)
] {
  # Scenario 3
  RedrivePolicy exists
  RedrivePolicy is_struct

  # Scenario 4
  RedrivePolicy {
    RedrivePolicy {
      deadLetterTargetArn exists
      check_is_string_and_not_empty(deadLetterTargetArn) or
      check_local_references(%INPUT_DOCUMENT, deadLetterTargetArn, %SQS_QUEUE_TYPE)
    }
  }
}

### rule filter_is_not_dlq(sqs_queue) {

```
RedriveAllowPolicy exists
RedriveAllowPolicy is struct

RedriveAllowPolicy {
    redrivePermission exists
    redrivePermission not in %DLQ_REDRIVE_PERMISSION
}
}

# # Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s*\z/
    }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        "Fn::GetAtt" {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_resource_type)
            <<Local Stack reference was invalid>>
        }
    }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
CT.SQS.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
SQSQueue:
  Type: AWS::SQS::Queue
  Properties:
    RedrivePolicy:
      deadLetterTargetArn:
        Fn::GetAtt: [DLQQueue, Arn]
      maxReceiveCount: 3
DLQQueue:
  Type: AWS::SQS::Queue
  Properties:
    RedriveAllowPolicy:
      redrivePermission: allowAll

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
SQSQueue:
  Type: AWS::SQS::Queue
  Properties: {}
[CT.SQS.PR.2] Require any Amazon SQS queue to have encryption at rest configured

This control checks whether an Amazon SQS queue is encrypted at rest.

• **Control objective:** Encrypt data at rest

• **Implementation:** AWS CloudFormation Guard Rule

• **Control behavior:** Proactive

• **Resource types:** AWS::SQS::Queue

• **AWS CloudFormation guard rule:** [CT.SQS.PR.2 rule specification](#)

Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.SQS.PR.2 rule specification](#)

• For examples of PASS and FAIL AWS CloudFormation Templates related to this control, see: [CT.SQS.PR.2 example templates](#)

Explanation

Server-side encryption (SSE) allows you to transmit sensitive data in encrypted queues. To protect the content of messages in queues, SSE uses KMS keys.

Remediation for rule failure

Set `SqsManagedSseEnabled` to `true` or set an AWS KMS key identifier in the `KmsMasterKeyId` property.

The examples that follow show how to implement this remediation.

Amazon SQS Queue - Example One

Amazon SQS queue configured to encrypt data at rest with server-side encryption enabled, by means of SQS managed encryption keys (SSE-SQS). The example is shown in JSON and in YAML.

JSON example

```json
{
}
```
"SQSQueue": {  
   "Type": "AWS::SQS::Queue",
   "Properties": {
      "SqsManagedSseEnabled": true
   }
}

YAML example

SQSQueue:
   Type: AWS::SQS::Queue
   Properties:
      SqsManagedSseEnabled: true

The examples that follow show how to implement this remediation.

Amazon SQS Queue - Example Two

Amazon SQS queue configured to encrypt data at rest with server-side encryption enabled, by means of AWS KMS (SSE-KMS). The example is shown in JSON and in YAML.

JSON example

{
   "SQSQueue": {
      "Type": "AWS::SQS::Queue",
      "Properties": {
         "KmsMasterKeyId": {
            "Ref": "KMSKey"
         }
      }
   }
}

YAML example
SQSQueue:
  Type: AWS::SQS::Queue
  Properties:
    KmsMasterKeyId: !Ref 'KMSKey'

CT.SQS.PR.2 rule specification

# #############################################################################
##       Rule Specification       ##
# #############################################################################

# Rule Identifier:
  sqs_queue_encrypted_check

# Description:
  This control checks whether an Amazon SQS queue is encrypted at rest.

# Reports on:
  AWS::SQS::Queue

# Evaluates:
  AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
  None

# Scenarios:
  Scenario: 1
    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
    And: The input document does not contain any SQS queue resources
    Then: SKIP
  Scenario: 2
    Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
    And: The input document contains an SQS queue resource
    And: 'KmsMasterKeyId' or 'SqsManagedSseEnabled' have not been provided on the SQS queue resource
    Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an SQS queue resource
# And: 'KmsMasterKeyId' has not been provided
# And: 'SqsManagedSseEnabled' has been provided and set to bool(false)
# Then: FAIL

# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an SQS queue resource
# And: 'KmsMasterKeyId' has been provided as an empty string or invalid local
reference to a KMS key or alias
# Then: FAIL

# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an SQS queue resource
# And: 'SqsManagedSseEnabled' is not provided or set to bool(false)
# And: 'KmsMasterKeyId' is provided as a non-empty string or local reference to a
KMS key
# Then: PASS

# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains an SQS queue resource
# And: 'KmsMasterKeyId' is not provided
# And: 'SqsManagedSseEnabled' is provided and set to bool(true)
# Then: PASS

# Constants
#
let SQS_QUEUE_TYPE = "AWS::SQS::Queue"
let INPUT_DOCUMENT = this
#
# Assignments
#
let sqs_queues = Resources.*[ Type == %SQS_QUEUE_TYPE ]

# # Primary Rules
# rule sqs_queue_encrypted_check when is_cfn_template(%INPUT_DOCUMENT)
%sqs_queues not empty {
  check(%sqs_queues.Properties)
  
  [CT.SQS.PR.2]: Require any Amazon SQS queue to have encryption at rest configured
  [FIX]: Set 'SqsManagedSseEnabled' to 'true' or set an AWS KMS key identifier in the 'KmsMasterKeyId' property.
}

rule sqs_queue_encrypted_check when is_cfn_hook(%INPUT_DOCUMENT, %SQS_QUEUE_TYPE) {
  check(%INPUT_DOCUMENT.%SQS_QUEUE_TYPE.resourceProperties)
  
  [CT.SQS.PR.2]: Require any Amazon SQS queue to have encryption at rest configured
  [FIX]: Set 'SqsManagedSseEnabled' to 'true' or set an AWS KMS key identifier in the 'KmsMasterKeyId' property.
}

# Parameterized Rules
#
rule check(sqs_queue) {
  %sqs_queue{
    check_sse_enabled(this) or
    check_kms_valid(this)
  }
}

rule check_sse_enabled(sqs_queue) {
  # Scenario 2
  SqsManagedSseEnabled exists

  # Scenario 3, 6
  KmsMasterKeyId not exists
  SqsManagedSseEnabled == true
}

rule check_kms_valid(sqs_queue) {
  # Scenario 2
  KmsMasterKeyId exists

  # Scenario 4, 5
check_is_string_and_not_empty(KmsMasterKeyId) or 
check_local_references(%INPUT_DOCUMENT, KmsMasterKeyId, "AWS::KMS::Key") or 
check_local_references(%INPUT_DOCUMENT, KmsMasterKeyId, "AWS::KMS::Alias")

# Scenario 5
SqsManagedSseEnabled not exists or 
SqsManagedSseEnabled == false
}

#
# Utility Rules
#
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or 
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
  %value {
    this is_string
    this != /\A\s*\z/
  }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
  %reference_properties {
    "Fn::GetAtt" {
      query_for_resource(%doc, this[0], %referenced_resource_type) 
      <<Local Stack reference was invalid>>
    } or Ref {
      query_for_resource(%doc, this, %referenced_resource_type) 
      <<Local Stack reference was invalid>>
    }
  }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
  let referenced_resource = %doc.Resources[ keys == %resource_key ]
CT.SQS.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
KMSKey:
  Type: AWS::KMS::Key
  Properties:
    KeyPolicy:
      Version: 2012-10-17
      Id: key-default-1
      Statement:
        - Sid: Enable IAM User Permissions
          Effect: Allow
          Principal:
            AWS: '*'
          Action: 'kms:*'
          Resource: '/*'

SQSQueue:
  Type: AWS::SQS::Queue
  Properties:
    KmsMasterKeyId:
      Ref: KMSKey

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
AWS Step Functions controls

Topics

- [CT.STEPFUNCTIONS.PR.1] Require an AWS Step Functions state machine to have logging activated
- [CT.STEPFUNCTIONS.PR.2] Require an AWS Step Functions state machine to have AWS X-Ray tracing activated

[CT.STEPFUNCTIONS.PR.1] Require an AWS Step Functions state machine to have logging activated

This control checks whether an AWS Step Functions state machine has logging enabled.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::StepFunctions::StateMachine
- **AWS CloudFormation guard rule:** [CT.STEPFUNCTIONS.PR.1 rule specification]

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.STEPFUNCTIONS.PR.1 rule specification]
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.STEPFUNCTIONS.PR.1 example templates]

Explanation

Defining a logging configuration for your state machines allows you to track their execution history and results. This configuration allows you to track failed events that occur on a state machine, and this insight into errors can assist you when you're troubleshooting issues.
Remediation for rule failure

In LoggingConfiguration, set Level to ERROR or ALL, and set Destinations to a list with one or more valid Amazon CloudWatch Logs log group ARNs.

The examples that follow show how to implement this remediation.

AWS Step Functions State Machine - Example

AWS Step Functions state machine configured to send logs to Amazon CloudWatch Logs. The example is shown in JSON and in YAML.

JSON example

```json
{
    "StateMachine": {
        "Type": "AWS::StepFunctions::StateMachine",
        "Properties": {
            "StateMachineType": "STANDARD",
            "DefinitionString": "{"StartAt": "Sample","States": "Sample": {"Type": "Task", "Resource":"arn:aws:lambda:us-east-1:111122223333:function:SampleFunction", "End": true}}",
            "RoleArn": {
                "Fn::GetAtt": [
                    "StepFunctionExecutionRole",
                    "Arn"
                ]
            },
            "LoggingConfiguration": {
                "Level": "ALL",
                "Destinations": [ {
                    "CloudWatchLogsLogGroup": {
                        "LogGroupArn": {
                            "Fn::GetAtt": [
                                "LogGroup",
                                "Arn"
                            ]
                        }
                    }
                ]
            }
        }
    }
}
```
YAML example

StateMachine:
  Type: AWS::StepFunctions::StateMachine
Properties:
  StateMachineType: STANDARD
  RoleArn: !GetAtt 'StepFunctionExecutionRole.Arn'
LoggingConfiguration:
  Level: ALL
  Destinations:
    - CloudWatchLogsLogGroup:
      LogGroupArn: !GetAtt 'LogGroup.Arn'

CT.STEPFUNCTIONS.PR.1 rule specification

# ###################################################################
#   Rule Specification       #
# ###################################################################
#
# Rule Identifier:
#   step_functions_state_machine_logging_enabled_check
#
# Description:
#   This control checks whether an AWS Step Functions state machine has logging enabled.
#
# Reports on:
#   AWS::StepFunctions::StateMachine
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any StepFunctions state machine resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a StepFunctions state machine resource
# And: 'LoggingConfiguration' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a StepFunctions state machine resource
# And: 'LoggingConfiguration' has been provided
# And: In 'LoggingConfiguration', 'Level' has not been provided or provided and set to a value other than
# 'ERROR' or 'ALL'
# And: In 'LoggingConfiguration', 'Destinations' has not been provided or provided as an empty list or list
# containing empty strings or non-valid local references
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a StepFunctions state machine resource
# And: 'LoggingConfiguration' has been provided
# And: In 'LoggingConfiguration', 'Level' has not been provided or provided and set to a value other than
# 'ERROR' or 'ALL'
# And: In 'LoggingConfiguration', 'Destinations' has not been provided or provided as an empty list or list
# containing empty strings or non-valid local references
# Then: FAIL
# Scenario: 5
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a StepFunctions state machine resource
# And: 'LoggingConfiguration' has been provided
# And: In 'LoggingConfiguration', 'Level' has not been provided or provided and
# set to a value other than
#   'ERROR' or 'ALL'
# And: In 'LoggingConfiguration', 'Destinations' has been provided as a list
# containing non-empty strings or
#   valid local references
# Then: FAIL

# Scenario: 6
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
# And: The input document contains a StepFunctions state machine resource
# And: 'LoggingConfiguration' has been provided
# And: In 'LoggingConfiguration', 'Level' has been provided and set to 'ERROR' or
# 'ALL'
# And: In 'LoggingConfiguration', 'Destinations' has been provided as a list
# containing non-empty strings or
#   valid local references
# Then: PASS

# Constants
#
let STEP_FUNCTIONS_STATE_MACHINE_TYPE = "AWS::StepFunctions::StateMachine"
let ALLOWED_LOGGING_LEVELS = [ "ERROR", "ALL" ]
let INPUT_DOCUMENT = this

# Assignments
#
let step_functions_state_machines = Resources.*[ Type == %STEP_FUNCTIONS_STATE_MACHINE_TYPE ]

# Primary Rules
#
rule step_functions_state_machine_logging_enabled_check when
  is_cfn_template(%INPUT_DOCUMENT)
  %step_functions_state_machines not empty {
    check(%step_functions_state_machines.Properties) <<
[CT.STEPFUNCTIONS.PR.1]: Require an AWS Step Functions state machine to have logging activated

[FIX]: In 'LoggingConfiguration', set 'Level' to 'ERROR' or 'ALL', and set 'Destinations' to a list with one or more valid Amazon CloudWatch Logs log group ARNs.

rule step_functions_state_machine_logging_enabled_check when
is_cfn_hook(%INPUT_DOCUMENT, %STEP_FUNCTIONS_STATE_MACHINE_TYPE) {
    check(%INPUT_DOCUMENT.%STEP_FUNCTIONS_STATE_MACHINE_TYPE.resourceProperties)
    <<
        [CT.STEPFUNCTIONS.PR.1]: Require an AWS Step Functions state machine to have logging activated
        [FIX]: In 'LoggingConfiguration', set 'Level' to 'ERROR' or 'ALL', and set 'Destinations' to a list with one or more valid Amazon CloudWatch Logs log group ARNs.
    >>
}

rule check(step_functions_state_machine) {
    %step_functions_state_machine {
        # Scenario 2
        LoggingConfiguration exists
        LoggingConfiguration is_struct

        LoggingConfiguration {
            # Scenarios 3, 4, 5 and 6
            Level exists
            Level in %ALLOWED_LOGGING_LEVELS

            Destinations exists
            Destinations is_list
            Destinations not empty

            Destinations[*] {
                CloudWatchLogsLogGroup exists
                CloudWatchLogsLogGroup is_struct

                CloudWatchLogsLogGroup {
                    LogGroupArn exists
                    check_is_string_and_not_empty(LogGroupArn) or
                    check_local_references(%INPUT_DOCUMENT, LogGroupArn, "AWS::Logs::LogGroup")
                }
            }
        }
    }
}
# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

rule check_is_string_and_not_empty(value) {
    %value {
        this is_string
        this != /\A\s\*\z/
    }
}

rule check_local_references(doc, reference_properties, referenced_resource_type) {
    %reference_properties {
        'Fn::GetAtt' {
            query_for_resource(%doc, this[0], %referenced_resource_type)
            <<Local Stack reference was invalid>>
        } or Ref {
            query_for_resource(%doc, this, %referenced_resource_type)
            <<Local Stack reference was invalid>>
        }
    }
}

rule query_for_resource(doc, resource_key, referenced_resource_type) {
    let referenced_resource = %doc.Resources[ keys == %resource_key ]
    %referenced_resource not empty
    %referenced_resource {
        Type == %referenced_resource_type
    }
}
CT.STEPFUNCTIONS.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```yaml
Resources:
  StepFunctionExecutionRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Principal:
              Service:
                - states.amazonaws.com
            Action:
              - sts:AssumeRole
            Condition:
              ArnLike:
                aws:SourceArn:
                  Fn::Sub: arn:${AWS::Partition}:states:${AWS::Region}:
                  ${AWS::AccountId}:
                StringEquals:
                  aws:SourceAccount:
                  Ref: AWS::AccountId
            Path: /
      Policies:
        - PolicyName: StepFunctionLoggingPolicy
          PolicyDocument:
            Version: '2012-10-17'
            Statement:
              - Effect: Allow
                Action:
                  - logs:CreateLogDelivery
                  - logs:GetLogDelivery
```

Proactive controls
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
  StepFunctionExecutionRole:
    Type: AWS::IAM::Role
    Properties:
      AssumeRolePolicyDocument:
        Version: '2012-10-17'
Statement:
  - Effect: Allow
  Principal:
    Service:
      - states.amazonaws.com
  Action:
    - sts:AssumeRole
  Condition:
    ArnLike:
      - aws:SourceArn:
        - Fn::Sub: arn:${AWS::Partition}:states:${AWS::Region}:${AWS::AccountId}:
    StringEquals:
      - aws:SourceAccount:
        - Ref: AWS::AccountId
  Path: /
  Policies:
    - PolicyName: StepFunctionLoggingPolicy
      PolicyDocument:
        Version: '2012-10-17'
        Statement:
          - Effect: Allow
            Action:
              - logs:CreateLogDelivery
              - logs:GetLogDelivery
              - logs:UpdateLogDelivery
              - logs:DeleteLogDelivery
              - logs:ListLogDeliveries
              - logs:PutLogEvents
              - logs:PutResourcePolicy
              - logs:DescribeResourcePolicies
              - logs:DescribeLogGroups
            Resource: '*'

StateMachine:
  Type: AWS::StepFunctions::StateMachine
  Properties:
    StateMachineType: STANDARD
  RoleArn:
    - Fn::GetAtt:
      - StepFunctionExecutionRole
      - Arn
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:

- **StepFunctionExecutionRole:**
  - **Type:** AWS::IAM::Role
  - **Properties:**
    - **AssumeRolePolicyDocument:**
      - **Version:** '2012-10-17'
      - **Statement:**
        - **Effect:** Allow
          - **Principal:**
            - **Service:** states.amazonaws.com
            - **Action:** sts:AssumeRole
        - **Condition:**
          - **ArnLike:**
            - **aws:SourceArn:**
              - **Fn::Sub:** arn:${AWS::Partition}:states:${AWS::Region}:${AWS::AccountId}:*
            - **StringEquals:**
              - **aws:SourceAccount:**
                - **Ref:** AWS::AccountId
          - **Path:** /
          - **Policies:**
            - **PolicyName:** StepFunctionLoggingPolicy
              - **PolicyDocument:**
                - **Version:** '2012-10-17'
                - **Statement:**
                  - **Effect:** Allow
                    - **Action:**
                      - logs:CreateLogDelivery
                      - logs:GetLogDelivery
                      - logs:UpdateLogDelivery
                      - logs:DeleteLogDelivery
                      - logs:ListLogDeliveries
                      - logs:PutLogEvents
                      - logs:PutResourcePolicy
[CT.STEPFUNCTIONS.PR.2] Require an AWS Step Functions state machine to have AWS X-Ray tracing activated

This control checks whether an AWS Step Functions state machine has AWS X-Ray tracing enabled.

- **Control objective:** Establish logging and monitoring
- **Implementation:** AWS CloudFormation guard rule
- **Control behavior:** Proactive
- **Resource types:** AWS::StepFunctions::StateMachine
- **AWS CloudFormation guard rule:** [CT.STEPFUNCTIONS.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.STEPFUNCTIONS.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation templates related to this control, see: [CT.STEPFUNCTIONS.PR.2 example templates](#)

Explanation
A tracing configuration allows your state machine to send tracing data to AWS X-Ray, so you can visualize the components of your state machine, identify performance bottlenecks, and troubleshoot requests that resulted in errors.

**Remediation for rule failure**

In the `TracingConfiguration` property, set the value of `Enabled` to `true`.

The examples that follow show how to implement this remediation.

**AWS Step Functions State Machine - Example**

An AWS Step Functions state machine configured to send trace data to AWS X-Ray. The example is shown in JSON and in YAML.

**JSON example**

```json
{
   "StateMachine": {
      "Type": "AWS::StepFunctions::StateMachine",
      "Properties": {
         "StateMachineType": "STANDARD",
         "DefinitionString": "{\"StartAt\": \"Sample\",\"States\":
           {\"Sample\": {\"Type\": \"Task\", \"Resource\":\"arn:aws:lambda:us-east-1:111122223333:function:SampleFunction\", \"End\": true}}",
         "RoleArn": {
            "Fn::GetAtt": [
               "StepFunctionExecutionRole",
               "Arn"
            ]
         },
         "LoggingConfiguration": {
            "Level": "ALL",
            "Destinations": [
               {
                  "CloudWatchLogsLogGroup": {
                     "LogGroupArn": {
                        "Fn::GetAtt": [
                           "LogGroup",
                           "Arn"
                        ]
                     }
                  }
               }
            ]
         }
      }
   }
}
```
YAML example

StateMachine:
  Type: AWS::StepFunctions::StateMachine
  Properties:
    StateMachineType: STANDARD
    DefinitionString: ' {
      "StartAt": "Sample",
      "States": {
        "Sample": {
          "Type": "Task",
          "End": true
        }
      }
    }
  RoleArn: !GetAtt 'StepFunctionExecutionRole.Arn'
  LoggingConfiguration:
    Level: ALL
  Destinations:
    - CloudWatchLogsLogGroup:
      LogGroupArn: !GetAtt 'LogGroup.Arn'
  TracingConfiguration:
    Enabled: true

CT.STEPFUNCTIONS.PR.2 rule specification

# #############################################################################
##    Rule Specification     ##
# #############################################################################
#
# Rule Identifier:
#   step_functions_state_machine_tracing_enabled_check
#
# Description:
# This control checks whether an AWS Step Functions state machine has AWS X-Ray tracing enabled.
#
# Reports on:
#   AWS::StepFunctions::StateMachine
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any StepFunctions state machine resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a StepFunctions state machine resource
#     And: 'TracingConfiguration' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a StepFunctions state machine resource
#     And: 'TracingConfiguration' has been provided
#     And: In 'TracingConfiguration', 'Enabled' has not been provided or provided and set to a value other than bool(true)
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains a StepFunctions state machine resource
#     And: 'TracingConfiguration' has been provided
#     And: In 'TracingConfiguration', 'Enabled' has been provided and set to bool(true)
#     Then: PASS
#
# Constants
#
let STEP_FUNCTIONS_STATE_MACHINE_TYPE = "AWS::StepFunctions::StateMachine"
let INPUT_DOCUMENT = this
#
# Assignments
#
let step_functions_state_machines = Resources.*[ Type == %STEP_FUNCTIONS_STATE_MACHINE_TYPE ]
#
# Primary Rules
#
rule step_functions_state_machine_tracing_enabled_check when
  is_cfn_template(INPUT_DOCUMENT)

%step_functions_state_machines not empty {
  check(%step_functions_state_machines.Properties)
    <<
      [CT.STEPFUNCTIONS.PR.2]: Require an AWS Step Functions state machine to have
      AWS X-Ray tracing activated
      [FIX]: In the 'TracingConfiguration' property, set the value of 'Enabled' to
      true.
    >>
}

rule step_functions_state_machine_tracing_enabled_check when
  is_cfn_hook(INPUT_DOCUMENT, %STEP_FUNCTIONS_STATE_MACHINE_TYPE) {
  check(INPUT_DOCUMENT.%STEP_FUNCTIONS_STATE_MACHINE_TYPE.resourceProperties)
    <<
      [CT.STEPFUNCTIONS.PR.2]: Require an AWS Step Functions state machine to have
      AWS X-Ray tracing activated
      [FIX]: In the 'TracingConfiguration' property, set the value of 'Enabled' to
      true.
    >>
}

rule check(step_functions_state_machine) {
  %step_functions_state_machine {
    # Scenario 2
    TracingConfiguration exists
    TracingConfiguration is_struct
  }
}
TracingConfiguration {
    # Scenarios 3 and 4
    Enabled exists
    Enabled == true
}

# Utility Rules

rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.STEPFUNCTIONS.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
StepFunctionExecutionRole:
    Type: AWS::IAM::Role
    Properties:
        AssumeRolePolicyDocument:
            Version: '2012-10-17'
            Statement:
                - Effect: Allow
                  Principal:
                      Service:
                      - states.amazonaws.com
                  Action:
- sts:AssumeRole
  Condition:
    ArnLike:
      aws:SourceArn:
        Fn::Sub: arn:${AWS::Partition}:states:${AWS::Region}:
          ${AWS::AccountId}:
            StringEquals:
              aws:SourceAccount:
                Ref: AWS::AccountId
  Path: /
Policies:
  - PolicyName: StepFunctionLoggingPolicy
    PolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Action:
            - logs:CreateLogDelivery
            - logs:GetLogDelivery
            - logs:UpdateLogDelivery
            - logs:DeleteLogDelivery
            - logs:ListLogDeliveries
            - logs:PutLogEvents
            - logs:PutResourcePolicy
            - logs:DescribeResourcePolicies
            - logs:DescribeLogGroups
              Resource: '*'
  - PolicyName: StepFunctionTracingPolicy
    PolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Action:
            - xray:PutTraceSegments
            - xray:PutTelemetryRecords
            - xray:GetSamplingRules
            - xray:GetSamplingTargets
              Resource: '*'
LogGroup:
  Type: AWS::Logs::LogGroup
  Properties: {}
StateMachine:
  Type: AWS::StepFunctions::StateMachine
  Properties:
StateMachineName:
  Fn::Sub: Example-StateMachine-${AWS::StackName}
StateMachineType: STANDARD
DefinitionString: '"
  "StartAt": "Example","States": {
    "Example": {
      "Type": "Task",
      "End": true
    }
  }
RoleArn:
  Fn::GetAtt: - StepFunctionExecutionRole
  - Arn
LoggingConfiguration:
  Level: ALL
  Destinations:
    - CloudWatchLogsLogGroup:
      LogGroupArn:
        Fn::GetAtt: - LogGroup
        - Arn
TracingConfiguration:
  Enabled: true

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
StepFunctionExecutionRole:
  Type: AWS::IAM::Role
  Properties:
    AssumeRolePolicyDocument:
      Version: '2012-10-17'
      Statement:
        - Effect: Allow
          Principal:
            Service:
              - states.amazonaws.com
          Action:
            - sts:AssumeRole
          Condition:
            ArnLike:
              aws:SourceArn:
Fn::Sub: arn:${AWS::Partition}:states:${AWS::Region}:
${AWS::AccountId}:*
   StringEquals:
       aws:SourceAccount:
           Ref: AWS::AccountId
   Path: /
   Policies:
       - PolicyName: StepFunctionLoggingPolicy
         PolicyDocument:
             Version: '2012-10-17'
             Statement:
                 - Effect: Allow
                   Action:
                       - logs:CreateLogDelivery
                       - logs:GetLogDelivery
                       - logs:UpdateLogDelivery
                       - logs:DeleteLogDelivery
                       - logs:ListLogDeliveries
                       - logs:PutLogEvents
                       - logs:PutResourcePolicy
                       - logs:DescribeResourcePolicies
                       - logs:DescribeLogGroups
                   Resource: '*'
       - PolicyName: StepFunctionTracingPolicy
         PolicyDocument:
             Version: '2012-10-17'
             Statement:
                 - Effect: Allow
                   Action:
                       - xray:PutTraceSegments
                       - xray:PutTelemetryRecords
                       - xray:GetSamplingRules
                       - xray:GetSamplingTargets
                   Resource: '*'
LogGroup:
    Type: AWS::Logs::LogGroup
    Properties: {}
StateMachine:
    Type: AWS::StepFunctions::StateMachine
    Properties:
        StateMachineName:
            Fn::Sub: Example-StateMachine-${AWS::StackName}
        StateMachineType: STANDARD
AWS WAF regional controls

Topics

- [CT.WAF-REGIONAL.PR.1] Require any AWS WAF regional rule to have a condition
- [CT.WAF-REGIONAL.PR.2] Require any AWS WAF regional web access control list (ACL) to have a rule or rule group

[CT.WAF-REGIONAL.PR.1] Require any AWS WAF regional rule to have a condition

This control checks whether an AWS WAF Classic Regional rule contains any conditions.

- Control objective: Limit network access
- Implementation: AWS CloudFormation Guard Rule
- Control behavior: Proactive
- Resource types: AWS::WAFRegional::Rule
- AWS CloudFormation guard rule: [CT.WAF-REGIONAL.PR.1 rule specification]

Details and examples
• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.WAF-REGIONAL.PR.1 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.WAF-REGIONAL.PR.1 example templates

Explanation

An AWS WAF (web application firewall) Regional rule can contain multiple conditions. The rule count's conditions allow for traffic inspection, based on a defined action, such as allow, block, or count. Without any conditions, the traffic passes without inspection. An AWS WAF Regional rule with no conditions, but with a name or tag suggesting allow, block, or count, could lead to the inaccurate assumption that one of those actions is occurring.

Remediation for rule failure

Provide one or more AWS WAF rule conditions within the Predicates property.

The examples that follow show how to implement this remediation.

AWS WAF Classic Regional Rule - Example

AWS WAF Classic Regional rule configured with an IP match predicate. The example is shown in JSON and in YAML.

JSON example

```json
{
    "WafRegionalRule": {
        "Type": "AWS::WAFRegional::Rule",
        "Properties": {
            "Name": "SampleRule",
            "MetricName": "SampleRuleMetric",
            "Predicates": [
                {
                    "DataId": {
                        "Ref": "IPSet",
                        "Negated": false,
                        "Type": "IPMatch"
                    }
                }
            ]
        }
    }
}
```
YAML example

WafRegionalRule:
  Type: AWS::WAFRegional::Rule
  Properties:
    Name: SampleRule
    MetricName: SampleRuleMetric
    Predicates:
      - DataId: !Ref 'IPSet'
        Negated: false
        Type: IPMatch

CT.WAF-REGIONAL.PR.1 rule specification

# #####################################################################
#  Rule Specification  
# #####################################################################
#
# Rule Identifier:
#  waf_regional_rule_not_empty_check
#
# Description:
#  This control checks whether a AWS WAF Classic Regional rule contains any
#  conditions.
#
# Reports on:
#  AWS::WAFRegional::Rule
#
# Evaluates:
#  AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#  None
#
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any AWS WAF Classic Regional rule resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an AWS WAF Classic Regional resource
# And: 'Predicates' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an AWS WAF Classic Regional rule resource
# And: 'Predicates' has been provided as an empty list
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an AWS WAF Classic Regional rule resource
# And: 'Predicates' has been provided as a non-empty list
# Then: PASS

# Constants
#
let WAF_REGIONAL_RULE_TYPE = "AWS::WAFRegional::Rule"
let INPUT_DOCUMENT = this

# Assignments
#
let waf_regional_rules = Resources. *[ Type == %WAF_REGIONAL_RULE_TYPE ]

# Primary Rules
#
rule waf_regional_rule_not_empty_check when is_cfn_template(%INPUT_DOCUMENT)
  %waf_regional_rules not empty {
      check(%waf_regional_rules.Properties) <<
[CT.WAF-REGIONAL.PR.1]: Require any AWS WAF regional rule to have a condition
[FIX]: Provide one or more AWS WAF rule conditions within the 'Predicates' property.

```
rule waf_regional_rule_not_empty_check when is_cfn_hook(%INPUT_DOCUMENT,%WAF_REGIONAL_RULE_TYPE) {
  check(%INPUT_DOCUMENT.%WAF_REGIONAL_RULE_TYPE.resourceProperties)
  } 
```

# Parameterized Rules

```
rule check(waf_regional_rule) {
  %waf_regional_rule {
    # Scenario 2, 3 and 4
    Predicates exists
    Predicates is_list
    Predicates not empty
  }
}
```

# Utility Rules

```
rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}
```

```
rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}
```
CT.WAF-REGIONAL.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
- **IPSetDenylist:**
  - Type: AWS::WAFRegional::IPSet
  - Properties:
    - Name: IPSet for deny listed IP addresses
    - IPSetDescriptors:
      - Type: IPV4
      - Value: 192.0.2.44/32
- **WafRegionalRule:**
  - Type: AWS::WAFRegional::Rule
  - Properties:
    - Name: ExampleRule
    - MetricName: ExampleRuleMetric
    - Predicates:
      - DataId:
        - Ref: IPSetDenylist
    - Negated: false
    - Type: "IPMatch"

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
- **WafRegionalRule:**
  - Type: AWS::WAFRegional::Rule
  - Properties:
    - Name: ExampleRule
    - MetricName: ExampleRuleMetric
[CT.WAF-REGIONAL.PR.2] Require any AWS WAF regional web access control list (ACL) to have a rule or rule group

This control checks whether an AWS WAF Classic Regional web ACL contains any WAF rules or rule groups.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::WAFRegional::WebACL
- **AWS CloudFormation guard rule:** [CT.WAF-REGIONAL.PR.2 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.WAF-REGIONAL.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.WAF-REGIONAL.PR.2 example templates](#)

**Explanation**

An AWS WAF Regional web access control list (ACL) can contain a collection of rules and rule groups that inspect and control web requests. If a web ACL is empty, the web traffic can pass without being detected or acted upon by WAF, depending on the default action.

**Remediation for rule failure**

Provide one or more AWS WAF rules within the Rules property.

The examples that follow show how to implement this remediation.

**AWS WAF Classic Regional web ACL - Example**

AWS WAF Classic Regional web ACL configured with a rule to block requests based on an IP set match. The example is shown in JSON and in YAML.

**JSON example**

```json
```
```json
{
    "WafRegionalWebAcl": {
        "Type": "AWS::WAFRegional::WebACL",
        "Properties": {
            "Name": "SampleWebACL",
            "DefaultAction": {
                "Type": "ALLOW"
            },
            "MetricName": "SampleWebACLMetric",
            "Rules": [
                {
                    "Action": {
                        "Type": "BLOCK"
                    },
                    "Priority": 1,
                    "RuleId": {
                        "Ref": "IPSetRule"
                    }
                }
            ]
        }
    }
}
```

**YAML example**

```yaml
WafRegionalWebAcl:
    Type: AWS::WAFRegional::WebACL
    Properties:
        Name: SampleWebACL
        DefaultAction:
            Type: ALLOW
        MetricName: SampleWebACLMetric
        Rules:
            - Action:
                Type: BLOCK
                Priority: 1
                RuleId: !Ref 'IPSetRule'
```
CT.WAF-REGIONAL.PR.2 rule specification

# ####################################################################
##       Rule Specification       ##
####################################################################
#
# Rule Identifier:
#   waf_regional_webacl_not_empty_check
#
# Description:
#   This control checks whether an AWS WAF Classic Regional web ACL contains any WAF
# rules or rule groups.
#
# Reports on:
#   AWS::WAFRegional::WebACL
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any WAF Classic Regional web ACL
#      resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an AWS WAF Classic Regional web ACL resource
#      And: 'Rules' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an AWS WAF Classic Regional web ACL resource
#      And: 'Rules' has been provided as an empty list
#     Then: FAIL
#   Scenario: 4
# Constants
#
let WAF_REGIONAL_WEB_ACL_TYPE = "AWS::WAFRegional::WebACL"
let INPUT_DOCUMENT = this
#
# Assignments
#
let waf_regional_web_acls = Resources.[ Type == %WAF_REGIONAL_WEB_ACL_TYPE ]
#
# Primary Rules
#
rule waf_regional_webacl_not_empty_check when is_cfn_template(%INPUT_DOCUMENT)
  %waf_regional_web_acls not empty {
    check(%waf_regional_web_acls.Properties)
    <<
    [CT.WAF-REGIONAL.PR.2]: Require any AWS WAF regional web access control list (ACL) to have a rule or rule group
    [FIX]: Provide one or more AWS WAF rules within the 'Rules' property.
    >>
  }
rule waf_regional_webacl_not_empty_check when is_cfn_hook(%INPUT_DOCUMENT,
  %WAF_REGIONAL_WEB_ACL_TYPE) {
    check(%INPUT_DOCUMENT.%WAF_REGIONAL_WEB_ACL_TYPE.resourceProperties)
    <<
    [CT.WAF-REGIONAL.PR.2]: Require any AWS WAF regional web access control list (ACL) to have a rule or rule group
    [FIX]: Provide one or more AWS WAF rules within the 'Rules' property.
    >>
  }
#
# Parameterized Rules
#
rule check(waf_regional_web_acl) {

%waf_regional_web_acl {
  # Scenario 2, 3 and 4
  Rules exists
  Rules is_list
  Rules not empty
}

# Utility Rules

# rule is_cfn_template(doc) {
  %doc {
    AWSTemplateFormatVersion exists or
    Resources exists
  }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
  %doc.%RESOURCE_TYPE.resourceProperties exists
}

CT.WAF-REGIONAL.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  IPSetDenylist:
    Type: "AWS::WAFRegional::IPSet"
    Properties:
      Name: "IPSet for deny listed IP addresses"
      IPSetDescriptors:
        - Type: "IPV4"
          Value: "192.0.2.44/32"
  IPSetRule:
    Type: AWS::WAFRegional::Rule
    Properties:
      Name: ExampleIPSetRule
MetricName: ExampleIPSetRuleMetric
Predicates:
- DataId:
  Ref: IPSetDenylist
  Negated: false
  Type: IPMatch
WafRegionalWebAcl:
  Type: AWS::WAFRegional::WebACL
Properties:
  Name: ExampleWebACL
  DefaultAction:
    Type: ALLOW
  MetricName: ExampleWebACLMetric
Rules:
- Action:
  Type: BLOCK
  Priority: 1
  RuleId:
    Ref: IPSetRule

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
WafRegionalWebAcl:
  Type: AWS::WAFRegional::WebACL
Properties:
  Name: ExampleWebACL
  DefaultAction:
    Type: ALLOW
  MetricName: ExampleWebACLMetric

AWS WAF controls

Topics
- [CT.WAF.PR.1] Require any AWS WAF global rule to have a condition
- [CT.WAF.PR.2] Require any AWS WAF global web ACL to have a rule or rule group
[CT.WAF.PR.1] Require any AWS WAF global rule to have a condition

This control checks whether an AWS WAF Classic global rule contains any conditions.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::WAF::Rule
- **AWS CloudFormation guard rule:** [CT.WAF.PR.1 rule specification](#)

**Details and examples**

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.WAF.PR.1 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.WAF.PR.1 example templates](#)

**Explanation**

A WAF global rule can contain multiple conditions. A rule's conditions allow for traffic inspection and take a defined action (allow, block, or count). Without any conditions, the traffic passes without inspection. A WAF global rule with no conditions, but with a name or tag suggesting allow, block, or count, could lead to the wrong assumption that one of those actions is occurring.

**Remediation for rule failure**

Provide one or more AWS WAF rule conditions within the `Predicates` property.

The examples that follow show how to implement this remediation.

**AWS WAF Classic Global Rule - Example**

AWS WAF Classic global rule configured with an IP match predicate. The example is shown in JSON and in YAML.

**JSON example**

```json
{
    "WAFRule": {
```
"Type": "AWS::WAF::Rule",
"Properties": {
    "Name": "SampleWAFRule",
    "MetricName": "SampleWAFRuleMetric",
    "Predicates": [
        {
            "DataId": {
                "Ref": "IPSet"
            },
            "Negated": false,
            "Type": "IPMatch"
        }
    ]
}

YAML example

WAFRule:
    Type: AWS::WAF::Rule
    Properties:
        Name: SampleWAFRule
        MetricName: SampleWAFRuleMetric
        Predicates:
            - DataId: !Ref 'IPSet'
              Negated: false
              Type: IPMatch

CT.WAF.PR.1 rule specification

# ####################################################################
## Rule Specification
# ####################################################################
# # Rule Identifier:
# #  waf_global_rule_not_empty_check
#
# Description:
# This control checks whether an AWS WAF Classic global rule contains any conditions.
#
# Reports on:
# AWS::WAF::Rule
#
# Evaluates:
# AWS CloudFormation, AWS CloudFormation Hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any WAF Classic global rule resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a WAF Classic global rule resource
# And: 'Predicates' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a WAF Classic global rule resource
# And: 'Predicates' has been provided as an empty list
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains a WAF Classic global rule resource
# And: 'Predicates' has been provided as a non-empty list
# Then: PASS
#
# Constants
#
let WAF_GLOBAL_RULE_TYPE = "AWS::WAF::Rule"
let INPUT_DOCUMENT = this
#
# Assignments

let waf_global_rules = Resources.*[ Type == %WAF_GLOBAL_RULE_TYPE ]

# # Primary Rules

rule waf_global_rule_not_empty_check when is_cfn_template(%INPUT_DOCUMENT)
   %waf_global_rules not empty {
   check(%waf_global_rules.Properties)
   <<
   [CT.WAF.PR.1]: Require any AWS WAF global rule to have a condition
   [FIX]: Provide one or more AWS WAF rule conditions within the 'Predicates'
   property.
   >>
}

rule waf_global_rule_not_empty_check when is_cfn_hook(%INPUT_DOCUMENT, %WAF_GLOBAL_RULE_TYPE) {
   check(%INPUT_DOCUMENT.%WAF_GLOBAL_RULE_TYPE.resourceProperties)
   <<
   [CT.WAF.PR.1]: Require any AWS WAF global rule to have a condition
   [FIX]: Provide one or more AWS WAF rule conditions within the 'Predicates'
   property.
   >>
}

# # Parameterized Rules

rule check(waf_global_rule) {
   %waf_global_rule {
      # Scenario 2, 3 and 4
      Predicates exists
      Predicates is_list
      Predicates not empty
   }
}

# # Utility Rules

rule is_cfn_template(doc) {
   %doc {

CT.WAF.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

```
Resources:
  IPSetDenylist:
    Type: AWS::WAF::IPSet
    Properties:
      Name: IPSet for deny listed IP addresses
      IPSetDescriptors:
        - Type: IPV4
          Value: 192.0.2.44/32
  WafGlobalRule:
    Type: AWS::WAF::Rule
    Properties:
      Name: ExampleWAFRule
      MetricName: ExampleWAFRuleMetric
      Predicates:
        - DataId:
            Ref: IPSetDenylist
          Negated: false
          Type: "IPMatch"
```

FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.
Resources:
WafGlobalRule:
  Type: AWS::WAF::Rule
  Properties:
    Name: ExampleWAFRule
    MetricName: ExampleWAFRuleMetric

[CT.WAF.PR.2] Require any AWS WAF global web ACL to have a rule or rule group

This control checks whether an AWS WAF Classic global web ACL contains any WAF rules or rule groups.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
- **Resource types:** AWS::WAF::WebACL
- **AWS CloudFormation guard rule:** [CT.WAF.PR.2 rule specification](#)

Details and examples

- For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: [CT.WAF.PR.2 rule specification](#)
- For examples of PASS and FAIL CloudFormation Templates related to this control, see: [CT.WAF.PR.2 example templates](#)

Explanation

A WAF global web ACL can contain a collection of rules and rule groups that inspect and control web requests. If a web ACL is empty, the web traffic can pass without being detected or acted upon by WAF depending on the default action.

**Remediation for rule failure**

Provide one or more AWS WAF rules within the Rules property.

The examples that follow show how to implement this remediation.
AWS WAF Classic Global Web ACL - Example

AWS WAF Classic global web ACL configured with a rule to block requests based on an IP set match. The example is shown in JSON and in YAML.

**JSON example**

```
{
   "WafGlobalWebAcl": {
      "Type": "AWS::WAF::WebACL",
      "Properties": {
         "Name": "SampleWebACL",
         "DefaultAction": {
            "Type": "ALLOW"
         },
         "MetricName": "SampleWebACLMetric",
         "Rules": [
            {
               "Action": {
                  "Type": "BLOCK"
               },
               "Priority": 1,
               "RuleId": {
                  "Ref": "IPSetRule"
               }
            }
         ]
      }
   }
}
```

**YAML example**

```
WafGlobalWebAcl:
   Type: AWS::WAF::WebACL
   Properties:
      Name: SampleWebACL
      DefaultAction:
         Type: ALLOW
      MetricName: SampleWebACLMetric
```
Rules:
- Action:
  Type: BLOCK
  Priority: 1
  RuleId: !Ref 'IPSetRule'

CT.WAF.PR.2 rule specification

```
# ###################################
##       Rule Specification        ##
###################################
#
# Rule Identifier:
#   waf_global_webacl_not_empty_check
#
# Description:
#   This control checks whether an AWS WAF Classic global web ACL contains any WAF
# rules or rule groups.
#
# Reports on:
#   AWS::WAF::WebACL
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
#   None
#
# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document does not contain any AWS WAF Classic global web ACL
resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook
document
#     And: The input document contains an AWS WAF Classic global web ACL resource
#     And: 'Rules' has not been provided
```
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an AWS WAF Classic global web ACL resource
# And: 'Rules' has been provided as an empty list
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an AWS WAF Classic global web ACL resource
# And: 'Rules' has been provided as a non-empty list
# Then: PASS

# Constants
#
let WAF_GLOBAL_WEB_ACL_TYPE = "AWS::WAF::WebACL"
let INPUTDocumento = this

# Assignments
#
let waf_global_web_acls = Resources.*[ Type == %WAF_GLOBAL_WEB_ACL_TYPE ]

# Primary Rules
#
rule waf_global_webacl_not_empty_check when is_cfn_template(%INPUT_DOCUMENT) {
  %waf_global_web_acls not empty {

    check(%waf_global_web_acls.Properties)
    <<
    [CT.WAF.PR.2]: Require any AWS WAF global web ACL to have a rule or rule group
    [FIX]: Provide one or more AWS WAF rules within the 'Rules' property.
    >>
  }
}

rule waf_global_webacl_not_empty_check when is_cfn_hook(%INPUT_DOCUMENT, %WAF_GLOBAL_WEB_ACL_TYPE) {
  check(%INPUT_DOCUMENT.%WAF_GLOBAL_WEB_ACL_TYPE.resourceProperties)
  <<
  [CT.WAF.PR.2]: Require any AWS WAF global web ACL to have a rule or rule group
  [FIX]: Provide one or more AWS WAF rules within the 'Rules' property.
  >>
}
CT.WAF.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
  IPSetDenylist:
    Type: "AWS::WAF::IPSet"
    Properties:
      Name: "IPSet for deny listed IP addresses"
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
WafGlobalWebAcl:
  Type: AWS::WAF::WebACL
  Properties:
    Name: ExampleWebACL
    DefaultAction:
      Type: ALLOW
    MetricName: ExampleWebACLMetric
  Rules:
    - Action:
      Type: BLOCK
      Priority: 1
    RuleId:
      Ref: IPSetRule
AWS WAFV2 controls

Topics

• [CT.WAFV2.PR.1] Require an AWS WAFV2 web ACL to be non-empty
• [CT.WAFV2.PR.2] Require an AWS WAFV2 rule group to be non-empty

[CT.WAFV2.PR.1] Require an AWS WAFV2 web ACL to be non-empty

This control checks whether an AWS WAFV2 web ACL contains any WAF rules or WAF rule groups.

• Control objective: Limit network access
• Implementation: AWS CloudFormation Guard Rule
• Control behavior: Proactive
• Resource types: AWS::WAFv2::WebACL
• AWS CloudFormation guard rule: CT.WAFV2.PR.1 rule specification

Details and examples

• For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.WAFV2.PR.1 rule specification
• For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.WAFV2.PR.1 example templates

Explanation

A web access control list (ACL) attached to WAFv2 can contain a collection of rules and rule groups. The rules are designed to inspect and control web requests. If a web ACL is empty, the web traffic passes without being detected or acted upon by the web application firewall (WAF).

Remediation for rule failure

Provide one or more AWS WAFV2 rules within the Rules property.

The examples that follow show how to implement this remediation.
AWS WAFV2 web ACL - Example

AWS WAFV2 web ACL configured with a rule to block requests based on a cross-site scripting (XSS) match statement. The example is shown in JSON and in YAML.

JSON example

```json
{
    "WAFv2WebACL": {
        "Type": "AWS::WAFv2::WebACL",
        "Properties": {
            "Scope": "REGIONAL",
            "Description": "Sample WebACL",
            "DefaultAction": {
                "Allow": {}  
            },
            "VisibilityConfig": {
                "SampledRequestsEnabled": true,
                "CloudWatchMetricsEnabled": true,
                "MetricName": "SampleWebACLMetric"
            },
            "Rules": [
                {
                    "Name": "SampleXssRule",
                    "Priority": 0,
                    "Action": {
                        "Block": {}
                    },
                    "VisibilityConfig": {
                        "SampledRequestsEnabled": true,
                        "CloudWatchMetricsEnabled": true,
                        "MetricName": "SampleXssMatchMetric"
                    },
                    "Statement": {
                        "XssMatchStatement": {
                            "FieldToMatch": {
                                "AllQueryArguments": {}
                            },
                            "TextTransformations": [{
                                "Priority": 1,
                                "Type": "NONE"
                            }]
                        }
                    }
                }
            ]
        }
    }
}
```
YAML example

WAFv2WebACL:
  Type: AWS::WAFv2::WebACL
  Properties:
    Scope: REGIONAL
    Description: Sample WebACL
    DefaultAction:
      Allow: {}
    VisibilityConfig:
      SampledRequestsEnabled: true
      CloudWatchMetricsEnabled: true
      MetricName: SampleWebACLMetric
  Rules:
    - Name: SampleXssRule
      Priority: 0
      Action:
        Block: {}
      VisibilityConfig:
        SampledRequestsEnabled: true
        CloudWatchMetricsEnabled: true
        MetricName: SampleXssMatchMetric
      Statement:
        XssMatchStatement:
          FieldToMatch:
            AllQueryArguments: {}
          TextTransformations:
            - Priority: 1
              Type: NONE
# Rule Specification

# Rule Identifier:
#   wafv2_webacl_not_empty_check

# Description:
#   This control checks whether an AWS WAFV2 web ACL contains any WAF rules or WAF rule groups.

# Reports on:
#   AWS::WAFv2::WebACL

# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook

# Rule Parameters:
#   None

# Scenarios:
#   Scenario: 1
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document does not contain any WAFv2 web ACL resources
#     Then: SKIP
#   Scenario: 2
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an WAFv2 web ACL resource
#     And: 'Rules' has not been provided
#     Then: FAIL
#   Scenario: 3
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
#     And: The input document contains an WAFv2 web ACL resource
#     And: 'Rules' has been provided as an empty list
#     Then: FAIL
#   Scenario: 4
#     Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document

Proactive controls
And: The input document contains an WAFv2 web ACL resource
And: 'Rules' has been provided as a non-empty list
Then: PASS

# Constants
#
let WAFV2_WEB_ACL_TYPE = "AWS::WAFv2::WebACL"
let INPUT_DOCUMENT = this
#
# Assignments
#
let wafv2_web_acls = Resources.*[ Type == %WAFV2_WEB_ACL_TYPE ]
#
# Primary Rules
#
rule wafv2_webacl_not_empty_check when is_cfn_template(%INPUT_DOCUMENT)
  %wafv2_web_acls not empty {
    check(%wafv2_web_acls.Properties)
    <<
    [CT.WAFV2.PR.1]: Require an AWS WAFV2 web ACL to be non-empty
    [FIX]: Provide one or more AWS WAFv2 rules within the 'Rules' property.
    >>
  }
rule wafv2_webacl_not_empty_check when is_cfn_hook(%INPUT_DOCUMENT,
  %WAFV2_WEB_ACL_TYPE) {
  check(%INPUT_DOCUMENT.%WAFV2_WEB_ACL_TYPE.resourceProperties)
  <<
  [CT.WAFV2.PR.1]: Require an AWS WAFV2 web ACL to be non-empty
  [FIX]: Provide one or more AWS WAFv2 rules within the 'Rules' property.
  >>
}
#
# Parameterized Rules
#
rule check(wafv2_web_acl) {
  %wafv2_web_acl {
  # Scenario 2, 3 and 4
  Rules exists
  Rules is_list
CT.WAFV2.PR.1 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
WAFv2WebACL:
  Type: AWS::WAFv2::WebACL
Properties:
  Scope: REGIONAL
  Description: Example WebACL
  DefaultAction:
    Allow: {}
  VisibilityConfig:
    SampledRequestsEnabled: true
    CloudWatchMetricsEnabled: true
    MetricName: ExampleWebACLMetric
Rules:
  - Name: ExampleXssRule
    Priority: 0
FAIL Example - Use this template to verify that the control prevents non-compliant resource creation.

Resources:
WAFv2WebACL:
  Type: AWS::WAFv2::WebACL
  Properties:
  Scope: REGIONAL
  Description: Example WebACL
  DefaultAction:
    Allow: {}
  VisibilityConfig:
    SampledRequestsEnabled: true
    CloudWatchMetricsEnabled: true
    MetricName: ExampleWebACLMetric

[CT.WAFV2.PR.2] Require an AWS WAFV2 rule group to be non-empty

This control checks whether AWS WAFV2 rule groups contain rules.

- **Control objective:** Limit network access
- **Implementation:** AWS CloudFormation Guard Rule
- **Control behavior:** Proactive
Resource types: AWS::WAFv2::RuleGroup

AWS CloudFormation guard rule: CT.WAFV2.PR.2 rule specification

Details and examples

For details about the PASS, FAIL, and SKIP behaviors associated with this control, see the: CT.WAFV2.PR.2 rule specification

For examples of PASS and FAIL CloudFormation Templates related to this control, see: CT.WAFV2.PR.2 example templates

Explanation

An AWS WAFV2 rule group can contain multiple rules. The rules are designed to inspect and control web requests. When an empty AWS WAFV2 rule group is associated with a web ACL, and the web ACL is not associated with any other rules or rule groups, the web traffic passes without being detected or acted upon by the web application firewall (WAF).

Remediation for rule failure

Provide one or more AWS WAFV2 rules within the Rules property.

The examples that follow show how to implement this remediation.

AWS WAFV2 Rule Group - Example

AWS WAFV2 rule group configured with a rule to block requests based on a cross-site scripting (XSS) match. statement. The example is shown in JSON and in YAML.

JSON example

```json
{
    "WAFv2RuleGroup": {
        "Type": "AWS::WAFv2::RuleGroup",
        "Properties": {
            "Scope": "REGIONAL",
            "Description": "Sample Rule Group",
            "VisibilityConfig": {
                "SampledRequestsEnabled": true,
                "CloudWatchMetricsEnabled": true,
            }
        }
    }
}
```
"MetricName": "SampleRuleGroupMetric",
],
"Capacity": 1000,
"Rules": [ 
{ 
"Name": "XssRule",
"Priority": 0,
"Action": {
   "Block": {}
},
"VisibilityConfig": {
   "SampledRequestsEnabled": true,
   "CloudWatchMetricsEnabled": true,
   "MetricName": "SampleXssMatchMetric"
},
"Statement": {
   "XssMatchStatement": {
   "FieldToMatch": {
     "AllQueryArguments": {}
   },
   "TextTransformations": [ 
   
   [ "Priority": 1,
   "Type": "NONE"
   ]
   ]
   }
}
}
]
}

YAML example

WAFv2RuleGroup:
   Type: AWS::WAFv2::RuleGroup
Properties:
   Scope: REGIONAL
   Description: Sample Rule Group
VisibilityConfig:
  SampledRequestsEnabled: true
  CloudWatchMetricsEnabled: true
  MetricName: SampleRuleGroupMetric
Capacity: 1000
Rules:
  - Name: XssRule
    Priority: 0
    Action:
      Block: {}
VisibilityConfig:
  SampledRequestsEnabled: true
  CloudWatchMetricsEnabled: true
  MetricName: SampleXssMatchMetric
Statement:
  XssMatchStatement:
    FieldToMatch:
      AllQueryArguments: {}
    TextTransformations:
      - Priority: 1
        Type: NONE

CT.WAFV2.PR.2 rule specification

# ##########################################################################################################
## Rule Specification  ##
# ##########################################################################################################
#
# Rule Identifier:
#   wafv2_rulegroup_not_empty_check
#
# Description:
#   This control checks whether AWS WAFV2 rule groups contain rules.
#
# Reports on:
#   AWS::WAFv2::RuleGroup
#
# Evaluates:
#   AWS CloudFormation, AWS CloudFormation hook
#
# Rule Parameters:
# None
#
# Scenarios:
# Scenario: 1
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document does not contain any AWS WAFV2 rule group resources
# Then: SKIP
# Scenario: 2
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an AWS WAFV2 rule group resource
# And: 'Rules' has not been provided
# Then: FAIL
# Scenario: 3
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an AWS WAFV2 rule group resource
# And: 'Rules' has been provided as an empty list
# Then: FAIL
# Scenario: 4
# Given: The input document is an AWS CloudFormation or AWS CloudFormation hook document
# And: The input document contains an AWS WAFV2 rule group resource
# And: 'Rules' has been provided as a non-empty list
# Then: PASS
#
# Constants
#
let WAFV2_RULE_GROUP_TYPE = "AWS::WAFv2::RuleGroup"
let INPUT_DOCUMENT = this
#
# Assignments
#
let wafv2_rule_groups = Resources.*[ Type == %WAFV2_RULE_GROUP_TYPE ]
#
# Primary Rules
#
rule wafv2_rulegroup_not_empty_check when is_cfn_template(%INPUT_DOCUMENT)
    %wafv2_rule_groups not empty {
check(%wafv2_rule_groups.Properties)
<<
[CT.WAFV2.PR.2]: Require an AWS WAFV2 rule group to be non-empty
[FIX]: Provide one or more AWS WAFV2 rules within the 'Rules' property.
>>
}

rule wafv2_rulegroup_not_empty_check when is_cfn_hook(%INPUT_DOCUMENT, %WAFV2_RULE_GROUP_TYPE) {
    check(%INPUT_DOCUMENT.%WAFV2_RULE_GROUP_TYPE.resourceProperties)
    <<
    [CT.WAFV2.PR.2]: Require an AWS WAFV2 rule group to be non-empty
    [FIX]: Provide one or more AWS WAFV2 rules within the 'Rules' property.
    >>
}

# # Parameterized Rules
#
rule check(wafv2_rule_group) {
    %wafv2_rule_group {
        # Scenario 2, 3 and 4
        Rules exists
        Rules is_list
        Rules not empty
    }
}

# # Utility Rules
#
rule is_cfn_template(doc) {
    %doc {
        AWSTemplateFormatVersion exists or
        Resources exists
    }
}

rule is_cfn_hook(doc, RESOURCE_TYPE) {
    %doc.%RESOURCE_TYPE.resourceProperties exists
}
CT.WAFV2.PR.2 example templates

You can view examples of the PASS and FAIL test artifacts for the AWS Control Tower proactive controls.

PASS Example - Use this template to verify a compliant resource creation.

Resources:
WAFv2RuleGroup:
  Type: AWS::WAFv2::RuleGroup
  Properties:
    Scope: REGIONAL
    Description: Example Rule Group
    VisibilityConfig:
      SampledRequestsEnabled: true
      CloudWatchMetricsEnabled: true
      MetricName: SampleRuleGroupMetrics
  Capacity: 1000
  Rules:
    - Name: TestXssRule
      Priority: 0
      Action:
        Block: {}
      VisibilityConfig:
        SampledRequestsEnabled: true
        CloudWatchMetricsEnabled: true
        MetricName: ExampleXssMatchMetric
  Statement:
    XssMatchStatement:
      FieldToMatch:
        AllQueryArguments: {}
WAFv2RuleGroup:
  Type: AWS::WAFv2::RuleGroup
  Properties:
    Scope: REGIONAL
    Description: Example Rule Group
    VisibilityConfig:
      SampledRequestsEnabled: true
      CloudWatchMetricsEnabled: true
      MetricName: ExampleRuleGroupMetric
    Capacity: 1000
    Rules: []

Security Hub standard

AWS Control Tower is integrated with AWS Security Hub to provide detective controls that help you monitor your AWS environment. The integration is accomplished with a Security Hub standard, called the Service-Managed Standard: AWS Control Tower.


This standard is available only for AWS Control Tower customers who have created the standard in the AWS Control Tower console. AWS Control Tower creates the standard for you when you enable the first Security Hub control in the AWS Control Tower console. When you enable the first control, if you haven’t already enabled Security Hub, AWS Control Tower also enables Security Hub for you.

After you create this standard, you can view the Security Hub detective controls alongside other AWS Control Tower controls, in the AWS Control Tower console and in Security Hub.

Control behavior

- No controls are enabled automatically when you create this standard in AWS Control Tower.
- The Security Hub controls are active at the OU level only, not for all AWS Control Tower OUs (if not enabled for all), and not for individual accounts.
- When Security Hub adds new controls, the new controls are not added to the Security Hub Service-Managed Standard: AWS Control Tower automatically.
Enable or remove controls for the Service-Managed Standard

To avoid drift, always enable and remove controls for the Service-Managed Standard by means of the AWS Control Tower service, either in the console or by calling the AWS Control Tower APIs, EnableControl and DisableControl. When you change the enablement status of a control in AWS Control Tower, the change also is reflected in Security Hub.

ℹ️ Note
If you deactivate a Service-Managed Standard control by means of the Security Hub console, the AWS Control Tower member account enters a state of control drift. In this situation, AWS Control Tower is not receiving the Security Hub findings for the control that you deactivated. You must resolve this drift before AWS Control Tower can apply the control successfully to your registered organizational units and member accounts.

You can delete this standard in the AWS Control Tower console by deactivating all controls in the standard. This deletes the standard for all managed accounts and governed Regions in AWS Control Tower. Deleting the standard does not deactivate Security Hub for your account.

ℹ️ Deprecated control
The control named [SH.S3.4] S3 buckets should have server-side encryption enabled is deprecated, effective July 18, 2023. It was removed from the controls library on August 18, 2023. For more information, see AWS Control Tower deprecates two controls.

Security Hub score and findings

Based on control status, Security Hub calculates a security score for the Service-Managed Standard: AWS Control Tower. This security score and the control findings are available only in Security Hub. These items aren't available in AWS Control Tower.

ℹ️ Note
When you create Service-Managed Standard: AWS Control Tower and enable controls for it, Security Hub may take up to 18 hours to generate findings for controls that use the same underlying AWS Config service-linked rule as controls from other enabled Security Hub standards.
Hub standards. For more information, see Schedule for running security checks in the AWS Security Hub User Guide.

Security Hub control drift reporting

When reporting drift for controls that are part of the AWS Security Hub Service-Managed Standard, AWS Control Tower receives a daily status update from Security Hub. If no update is received, AWS Control Tower verifies whether drift has occurred. If so, AWS Control Tower reports drift. If a control shows drift, AWS Control Tower sends an Amazon SNS notification to the AWS Control Tower security-aggregate-notification channel. You must subscribe to this SNS notification to receive information about which specific account is affected by Security Hub control drift. For more information about Security Hub control drift in AWS Control Tower, see Security Hub control drift.

Although controls are active in every governed Region, AWS Control Tower sends the AWS Security Hub Finding events to the AWS Control Tower home Region only.

Remediate drift

When drift is reported, you can remediate the situation by choosing Re-register OU on the Organizations page in the AWS Control Tower console, or by deactivating and re-activating the control that's in a drifted state, either by means of the console, or through the AWS Control Tower API.

Note

You can enable and manage some Security Hub controls from AWS Control Tower, with the Security Hub Service-managed Standard: AWS Control Tower.

Unsupported Regions

It is important to know that some Security Hub controls do not operate in certain AWS Regions where AWS Control Tower is available, because those Regions do not support the required underlying functionality. As a result, when you deploy an Security Hub control through AWS Control Tower, the control may not be operating in all Regions that you govern with AWS Control Tower. For more information about the Security Hub controls that cannot be deployed in certain Regions, see the Security Hub controls reference documentation.
The following AWS Regions do not support controls that are part of the Security Hub Service-managed Standard: AWS Control Tower

- Asia Pacific (Hong Kong) Region, ap-east-1
- Asia Pacific (Jakarta) Region, ap-southeast-3
- Asia Pacific (Osaka) Region, ap-northeast-3
- Europe (Milan) Region, eu-south-1
- Africa (Cape Town) Region, af-south-1
- Middle East (Bahrain) Region, me-south-1
- Israel (Tel Aviv), il-central-1
- Middle East (UAE) Region, me-central-1
- Europe (Spain) Region, eu-south-2
- Asia Pacific (Hyderabad) Region, ap-south-2
- Europe (Zurich) Region, eu-central-2
- Asia Pacific (Melbourne) Region ap-southeast-4

You can view the Regions for each control in the AWS Control Tower console.

Certain AWS Security Hub Service-Managed Standard: AWS Control Tower controls have specific, unsupported Regions

- **SH.DocumentDB.3**—eu-north-1 us-west-1
- **SH.DynamoDB.3**—ap-northeast-1, ca-central-1, eu-north-1
- **SH.EC2.23**—ap-south-1
- **SH.EKS.1**—us-west-1
- **SH.ElastiCache.3**—ap-northeast-2, ap-south-1, ca-central-1, eu-north-1, eu-west-2, eu-west-3, us-east-1
- **SH.ElastiCache.4**—ap-northeast-2, ap-south-1, ca-central-1, eu-north-1, eu-west-2, eu-west-3, us-east-1
- **SH.ElastiCache.5**—ap-northeast-2, ap-south-1, ca-central-1, eu-north-1, eu-west-2, eu-west-3, us-east-1
- **SH.ElastiCache.6**—ap-northeast-2, ap-south-1, ca-central-1, eu-north-1, eu-west-2, eu-west-3, us-east-1
Controls that enhance digital sovereignty protection

*Digital sovereignty* means control over digital assets. AWS Control Tower offers a group of controls that are designed to enhance your digital sovereignty governance posture. The pillars of this posture are as follows:

- **Data residency:** Control over the location of your data.
  
  For more information, see [*Controls that enhance data residency protection*](#).

- **Granular access:** Access restrictions that limit all access to your data, unless the access is requested by you, or by a partner whom you trust.
  
  For more information, see [*Region deny control applied to the OU*](#).

- **Encryption:** Features and controls that help you encrypt data, whether in transit, at rest, or in memory.
  
  For example, see the control [*CT.APPSYNC.PR.5: Require an AWS AppSync GraphQL API cache to have encryption at rest enabled*](#).

- **Resiliency:** Ability to sustain operations through disruption or disconnection, which is essential in the case of events such as supply chain disruption, network interruption, and natural disaster.
  
  For example, see the control [*CT.NETWORK-FIREWALL.PR.5: Require an AWS Network Firewall firewall to be deployed across multiple Availability Zones*](#).

You can read more about digital sovereignty and AWS in the blog: [*AWS Digital Sovereignty Pledge: Control without compromise*](#).

Preventive controls that assist with digital sovereignty

These preventive controls are designed to assist you with your digital sovereignty governance posture.

This group of controls helps you comply with digital sovereignty regulatory requirements because they prevent actions, enforce configurations, and detect resource changes that affect data residency, granular access restriction, encryption, and resilience capabilities.
These are optional controls with Preventive guidance, implemented with AWS service control policies (SCPs). They are not deployed on any OU by default. You can enable them through the AWS Control Tower console, or through the AWS Control Tower APIs.

In the AWS Control Tower console, you can view these controls together under the Groups tab on the Categories page.

Topics

- **CT.APPSYNC.PV.1**: Require that an AWS AppSync GraphQL API is configured with private visibility
- **CT.EC2.PV.1**: Require an Amazon EBS snapshot to be created from an encrypted EC2 volume
- **CT.EC2.PV.2**: Require that an attached Amazon EBS volume is configured to encrypt data at rest
- **CT.EC2.PV.3**: Require that an Amazon EBS snapshot cannot be publicly restorable
- **CT.EC2.PV.4**: Require that Amazon EBS direct APIs are not called
- **CT.EC2.PV.5**: Disallow the use of Amazon EC2 VM import and export
- **CT.EC2.PV.6**: Disallow the use of deprecated Amazon EC2 RequestSpotFleet and RequestSpotInstances API actions
- **CT.KMS.PV.1**: Require an AWS KMS key policy to have a statement that limits creation of AWS KMS grants to AWS services
- **CT.KMS.PV.2**: Require that an AWS KMS asymmetric key with RSA key material used for encryption does not have a key length of 2048 bits
- **CT.KMS.PV.3**: Require that an AWS KMS key is configured with the bypass policy lockout safety check enabled
- **CT.KMS.PV.4**: Require that an AWS KMS customer-managed key (CMK) is configured with key material originating from AWS CloudHSM
- **CT.KMS.PV.5**: Require that an AWS KMS customer-managed key (CMK) is configured with imported key material
- **CT.KMS.PV.6**: Require that an AWS KMS customer-managed key (CMK) is configured with key material originating from an external key store (XKS)
- **CT.LAMBDA.PV.1**: Require an AWS Lambda function URL to use AWS IAM-based authentication
- **CT.LAMBDA.PV.2**: Require an AWS Lambda function URL to be configured for access only by principals within your AWS account.
CT.APPSYNC.PV.1: Require that an AWS AppSync GraphQL API is configured with private visibility

This control disallows creation of public AWS AppSync APIs by requiring APIs to be configured with private visibility. This configuration ensures that the APIs are accessible only from a VPC.

**Service:** AWS AppSync

- **Control objective:** Limit network access
- **Implementation:** Service control policy (SCP)
- **Control behavior:** Preventive
- **Control owner:** AWS Control Tower
- **Groups:** Digital sovereignty

**ResourceTypes:** AWS::AppSync::GraphQLApi

Here is the SCP artifact for this control.

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "CTAPPSYNCPV1",
      "Effect": "Deny",
      "Action": "appsync:CreateGraphqlApi",
      "Resource": "*",
      "Condition": {
        "StringNotEquals": {
          "appsync:Visibility": "PRIVATE"
        }
      }
    }
  ]
}
```

CT.EC2.PV.1: Require an Amazon EBS snapshot to be created from an encrypted EC2 volume

This control disallows creation of new snapshots that are based on unencrypted EBS volumes.

This control does not prevent creation of unencrypted EBS snapshots created by means of the 'CopySnapshot' operation. AWS Control Tower recommends enabling EBS encryption by default to
ensure that encryption is applied to copies of unencrypted snapshots. For more information see Encryption scenarios in the Amazon EC2 User Guide for Linux Instances.

**Service:** Amazon EC2

- **Control objective:** Encrypt data at rest
- **Implementation:** Service control policy (SCP)
- **Control behavior:** Preventive
- **Control owner:** AWS Control Tower
- **Groups:** Digital sovereignty

**ResourceTypes:** AWS::Account

Here is the SCP artifact for this control.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      
      {
         "Sid": "CTEC2PV1",
         "Effect": "Deny",
         "Action": [
            "ec2:CreateSnapshot",
            "ec2:CreateSnapshots"
         ],
         "Resource": "arn:*:ec2:*:*:volume/*",
         "Condition": {
            "Bool": {
               "ec2:Encrypted": "false"
            }
         }
      }
   ]
}
```

**CT.EC2.PV.2: Require that an attached Amazon EBS volume is configured to encrypt data at rest**

This control disallows attaching an unencrypted EBS volume to a running or stopped EC2 instance.

This control does not prevent replacing an EBS-backed root volume for a running instance with an unencrypted volume, by means of the
CreateReplaceRootVolumeTask operation., AWS Control Tower recommends enabling EBS encryption by default. For information on EBS encryption by default, see Encryption by default in the Amazon EC2 User Guide for Linux Instances.

Service: Amazon EC2

- **Control objective:** Encrypt data at rest
- **Implementation:** Service control policy (SCP)
- **Control behavior:** Preventive
- **Control owner:** AWS Control Tower
- **Groups:** Digital sovereignty

Resource types: AWS::EC2::Volume

Here is the SCP artifact for this control.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "CTEC2PV2",
            "Effect": "Deny",
            "Action": "ec2:AttachVolume",
            "Resource": "arn:*:ec2:*:*:volume/*",
            "Condition": {
                "Bool": {
                    "ec2:Encrypted": "false"
                }
            }
        }
    ]
}
```

**CT.EC2.PV.3: Require that an Amazon EBS snapshot cannot be publicly restorable**

This control disallows sharing of an EBS snapshot with all AWS accounts.

This control prevents unencrypted EBS snapshots from being made public, by disallowing sharing of EBS snapshots with all AWS accounts. Encrypted snapshots and snapshots with AWS
Marketplace product codes cannot be made public. To prevent the public sharing of snapshots, AWS Control Tower recommends enabling block public access for snapshots. For more information, see [Block public access for snapshots](#) in the *Amazon EC2 User Guide for Linux Instances*.

**Service**: Amazon EC2

- **Control objective**: Enforce least privilege
- **Implementation**: Service control policy (SCP)
- **Control behavior**: Preventive
- **Control owner**: AWS Control Tower
- **Groups**: Digital sovereignty

Resource types: `AWS::Account`

Here is the SCP artifact for this control.

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "CTEC2PV3",
      "Effect": "Deny",
      "Action": "ec2:ModifySnapshotAttribute",
      "Resource": "arn:*:ec2::*:snapshot/*",
      "Condition": {
        "StringEquals": {
          "ec2:Add/group": "all"
        }
      }
    }
  ]
}
```

**CT.EC2.PV.4: Require that Amazon EBS direct APIs are not called**

This control disallows usage of all EBS direct APIs, specifically including `StartSnapshot`, `PutSnapshotBlock`, `GetSnapshot`, and `CompleteSnapshot`.

Do not enable this control if you use EBS direct APIs, either directly or through an AWS backup partner product.
Service: Amazon EBS

- **Control objective:** Enforce least privilege
- **Implementation:** Service control policy (SCP)
- **Control behavior:** Preventive
- **Control owner:** AWS Control Tower
- **Groups:** Digital sovereignty

Resource types: AWS:::Account

Here is the SCP artifact for this control.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "CTEC2PV4",
         "Effect": "Deny",
         "Action": "ebs:*",
         "Resource": "*"
      }
   ]
}
```

**CT.EC2.PV.5: Disallow the use of Amazon EC2 VM import and export**

This control disallows use of Amazon EC2 VM Import/Export APIs that can be used to import and export EC2 instance, snapshot, image and volume data.

If you need to use VM Import/Export functionality, do not enable this control. This control does not prevent cancelling existing VM Import/Export import, export or conversion tasks.

Service: Amazon EC2

- **Control objective:** Enforce least privilege, Protect configurations
- **Implementation:** Service control policy (SCP)
- **Control behavior:** Preventive
- **Control owner:** AWS Control Tower
• **Groups:** Digital sovereignty

**Resource types:** AWS:::Account

Here is the SCP artifact for this control.

```
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "CTEC2PV5",
         "Effect": "Deny",
         "Action": [
            "ec2:CreateInstanceExportTask",
            "ec2:ExportImage",
            "ec2:ImportImage",
            "ec2:ImportSnapshot",
            "ec2:ImportInstance",
            "ec2:ImportVolume"
         ],
         "Resource": "*"
      }
   ]
}
```

**CT.EC2.PV.6: Disallow the use of deprecated Amazon EC2 RequestSpotFleet and RequestSpotInstances API actions**

This control disallows usage of Amazon EC2 ec2:RequestSpotFleet and ec2:RequestSpotInstances APIs, because they are legacy APIs with no planned investment.

This control denies ec2:RequestSpotFleet and ec2:RequestSpotInstances actions for all IAM principals. If you need to use these actions, do not enable this control. This control does not prevent cancelling or modifying an existing spot fleet or spot instance request.

**Service:** Amazon EC2

• **Control objective:** Enforce least privilege, Protect configurations

• **Implementation:** Service control policy (SCP)

• **Control behavior:** Preventive

• **Control owner:** AWS Control Tower
Here is the SCP artifact for this control.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "CTEC2PVG",
         "Effect": "Deny",
         "Action": [
            "ec2:RequestSpotFleet",
            "ec2:RequestSpotInstances"
         ],
         "Resource": "*"
      }
   ]
}
```

**CT.KMS.PV.1: Require an AWS KMS key policy to have a statement that limits creation of AWS KMS grants to AWS services**

This control requires that AWS KMS grants are issued only to AWS services that are integrated with AWS KMS, or to an AWS service principal.

This control disallows the creation of AWS KMS grants for your KMS keys, when the request does not originate from an AWS service that's integrated with AWS KMS, or from an AWS service principal. If you need to issue AWS KMS grants directly to your IAM principals for a customer-managed key, do not enable this control.

**Service:** AWS Key Management Service, (AWS KMS)

- **Control objective:** Enforce least privilege
- **Implementation:** Service control policy (SCP)
- **Control behavior:** Preventive
- **Control owner:** AWS Control Tower
- **Groups:** Digital sovereignty
Resource types: `AWS::KMS::Key`

Here is the SCP artifact for this control.

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "CTKMSPV1",
      "Effect": "Deny",
      "Action": "kms:CreateGrant",
      "Resource": "*",
      "Condition": {
        "BoolIfExists": {
          "kms:GrantIsForAWSResource": "false",
          "aws:PrincipalIsAWSService": "false"
        }
      }
    }
  ]
}
```

**CT.KMS.PV.2: Require that an AWS KMS asymmetric key with RSA key material used for encryption does not have a key length of 2048 bits**

This control disallows the creation of KMS keys used for encryption and decryption that also have a key spec of RSA_2048. It requires that you use a KeySpec value other than RSA_2048 when creating asymmetric KMS keys used for encryption and decryption.

**Service:** AWS Key Management Service (AWS KMS);

- **Control objective:** Encrypt data at rest, Encrypt data in transit
- **Implementation:** Service control policy (SCP)
- **Control behavior:** Preventive
- **Control owner:** AWS Control Tower
- **Groups:** Digital sovereignty

Resource types: `AWS::KMS::Key`

Here is the SCP artifact for this control.
CT.KMS.PV.3: Require that an AWS KMS key is configured with the bypass policy lockout safety check enabled

This control disallows bypassing the KMS key policy lockout safety check when creating a KMS key or updating its key policy, because bypassing this check increases the risk that a KMS key becomes unmanageable.

Service: AWS Key Management Service (AWS KMS)

- Control objective: Enforce least privilege, Protect configurations
- Implementation: Service control policy (SCP)
- Control behavior: Preventive
- Control owner: AWS Control Tower
- Groups: Digital sovereignty

Resource types: AWS::KMS::Key

Here is the SCP artifact for this control.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "CTKMSPV2",
         "Effect": "Deny",
         "Action": "kms:CreateKey",
         "Resource": "*",
         "Condition": {
            "StringEquals": {
               "kms:KeyUsage": "ENCRYPT_Decrypt",
               "kms:KeySpec": "RSA_2048"
            }
         }
      }
   ]
}
```
CT.KMS.PV.4: Require that an AWS KMS customer-managed key (CMK) is configured with key material originating from AWS CloudHSM

This control disallows creation of KMS keys that do not have a key origin of AWS_CLOUDHSM.

This control restricts creation of KMS keys to those that use a specific key material origin. It is suitable when enforcing a KMS key management strategy that requires all KMS keys to a custom key store based on AWS Cloud HSM. Before enforcing the exclusive use of keys whose key material resides in an AWS CloudHSM cluster, carefully evaluate the trade-offs documented in the AWS CloudHSM key stores section of the AWS KMS Developer Guide.

Service: AWS Key Management Service, (AWS KMS)

- Control objective: Encrypt data at rest, Encrypt data in transit
- Implementation: Service control policy (SCP)
- Control behavior: Preventive
- Control owner: AWS Control Tower
- Groups: Digital sovereignty

Resource types: AWS::KMS::Key

Here is the SCP artifact for this control.
CT.KMS.PV.5: Require that an AWS KMS customer-managed key (CMK) is configured with imported key material

This control disallows creation of KMS keys that do not have a key origin of EXTERNAL.

This control restricts creation of KMS keys to those that use a specific key material origin. It is suitable when enforcing a KMS key management strategy that requires all KMS keys to use imported key material. Before enforcing the exclusive use of keys with imported key material, carefully evaluate the trade-offs documented in the Importing key material for AWS KMS keys section of the AWS KMS Developer Guide.

Service: AWS Key Management Service, (AWS KMS)

- Control objective: Encrypt data at rest, Encrypt data in transit
- Implementation: Service control policy (SCP)
- Control behavior: Preventive
- Control owner: AWS Control Tower
- Groups: Digital sovereignty

Resource types: AWS::KMS::Key

Here is the SCP artifact for this control.
CT.KMS.PV.6: Require that an AWS KMS customer-managed key (CMK) is configured with key material originating from an external key store (XKS)

This control disallows creation of KMS keys that do not have a key origin of EXTERNAL_KEY_STORE.

This control restricts creation of KMS keys to those that use a specific key material origin. It is suitable when enforcing a KMS key management strategy that requires all KMS keys to an external key store, custom key store. Before enforcing the exclusive use of keys whose key material resides in an external key store, carefully evaluate the trade-offs documented in the External key stores section of the AWS KMS Developer Guide.

**Service:** AWS Key Management Service, (AWS KMS)

- **Control objective:** Encrypt data at rest, Encrypt data in transit
- **Implementation:** Service control policy (SCP)
- **Control behavior:** Preventive
- **Control owner:** AWS Control Tower
- **Groups:** Digital sovereignty

Resource types: AWS::KMS::Key

Here is the SCP artifact for this control.
CT.LAMBDA.PV.1: Require an AWS Lambda function URL to use AWS IAM-based authentication

This control disallows creation and update of Lambda function URL configurations, it does not prevent deletion of Lambda function URL configurations.

**Service:** AWS Lambda

- **Control objective:** Enforce least privilege
- **Implementation:** Service control policy (SCP)
- **Control behavior:** Preventive
- **Control owner:** AWS Control Tower
- **Groups:** Digital sovereignty

**ResourceTypes:** AWS::Lambda::Url

Here is the SCP artifact for this control.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "CTKMSPIHNTL",
            "Effect": "Deny",
            "Action": "kms:CreateKey",
            "Resource": "*",
            "Condition": {
                "StringNotEquals": {
                    "kms:KeyOrigin": "EXTERNAL_KEY_STORE"
                }
            }
        }
    ]
}
```
CT.LAMBDA.PV.2: Require an AWS Lambda function URL to be configured for access only by principals within your AWS account

This control requires an AWS Lambda function resource-based policy to only grant access to IAM principals that reside in your AWS account.

This control limits cross-account access to Lambda functions by restricting the allowed IAM principals in a Lambda function resource policy to those in the same account as the Lambda function.

Service: AWS Lambda

- **Control objective:** Enforce least privilege
- **Implementation:** Service control policy (SCP)
- **Control behavior:** Preventive
- **Control owner:** AWS Control Tower
- **Groups:** Digital sovereignty

ResourceTypes: AWS::Lambda::Url

Here is the SCP artifact for this control.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "CTLAMBDAPV2",
         "Effect": "Deny",
         "Action": [
            "lambda:CreateFunctionUrlConfig",
            "lambda:UpdateFunctionUrlConfig"
         ],
         "Resource": "arn:*
```
"Action": "lambda:AddPermission",
"Resource": "arn:*:lambda:*:*:function:*",
"Condition": {
    "StringNotLike": {
        "lambda:Principal": [
            "arn:aws:iam::${aws:PrincipalAccount}:*",
            "${aws:PrincipalAccount}"
        ]
    },
    "ArnNotLike": {
        "aws:PrincipalArn": "arn:aws:iam::*:role/AWSControlTowerExecution"
    }
}
]
]

Controls that enhance data residency protection

These elective controls complement your enterprise's data residency posture. By applying these controls together, you can set up your multi-account environment to help detect and inhibit the purposeful or accidental creation, sharing, or copying of data, outside of your selected AWS Region or Regions.

These controls take effect at the OU level, and they apply to all member accounts within the OU.

⚠️ **Important**

Certain global AWS services, such as AWS Identity and Access Management (IAM) and AWS Organizations, are exempt from these controls. You can identify the services that are exempt by reviewing the **Region deny SCP**, shown in the example code. Services with "*" after their identifier are exempt, because all actions are permitted when the "*" notation is given. This SCP essentially contains a list of explicitly permitted actions, and all other actions are denied. You cannot deny access to your home Region.

Video: Enable data residency controls

This video (5:58) describes how to enable data residency controls with AWS Control Tower controls. For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.
Video Walkthrough of Enabling Data Residency Controls in AWS Control Tower.

Note

We are transitioning our terminology to align better with industry usage and with other AWS services. During this time, you may see the previous term, guardrail, as well as the new term, control, in our documentation, console, blogs, and videos. These terms are synonymous for our purposes.

Topics

- Disallow internet access for an Amazon VPC instance managed by a customer
- Disallow Amazon Virtual Private Network (VPN) connections
- Disallow cross-region networking for Amazon EC2, Amazon CloudFront, and AWS Global Accelerator
- Detect whether public IP addresses for Amazon EC2 autoscaling are enabled through launch configurations
- Detect whether replication instances for AWS Database Migration Service are public
- Detect whether Amazon EBS snapshots are restorable by all AWS accounts
- Detect whether any Amazon EC2 instance has an associated public IPv4 address
- Detect whether Amazon S3 settings to block public access are set as true for the account
- Detects whether an Amazon EKS endpoint is blocked from public access
- Detect whether an Amazon OpenSearch Service domain is in Amazon VPC
- Detect whether any Amazon EMR cluster master nodes have public IP addresses
- Detect whether the AWS Lambda function policy attached to the Lambda resource blocks public access
- Detect whether public routes exist in the route table for an Internet Gateway (IGW)
- Detect whether Amazon Redshift clusters are blocked from public access
- Detect whether an Amazon SageMaker notebook instance allows direct internet access
- Detect whether any Amazon VPC subnets are assigned a public IP address
- Detect whether AWS Systems Manager documents owned by the account are public
Disallow internet access for an Amazon VPC instance managed by a customer

This control disallows internet access for an Amazon Virtual Private Cloud (VPC) instance managed by a customer, rather than by an AWS service.

⚠️ Important

If you provision Account Factory accounts with VPC internet access settings enabled, that Account Factory setting overrides this control. To avoid enabling internet access for newly provisioned accounts, you must change the setting in Account Factory. For more information, see [Walkthrough: Configure AWS Control Tower Without a VPC](#).

- This control does not apply to VPCs managed by AWS services.
- Existing VPCs that have internet access retain their internet access. It applies to new instances only. After this control is applied, access cannot be changed.

This is a preventive control with elective guidance. By default, this control isn't enabled on any OUs.

The artifact for this control is the following service control policy (SCP).

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "GRDISALLOWVPCINTERNETACCESS",
      "Effect": "Deny",
      "Action": [
        "ec2:CreateInternetGateway",
        "ec2:AttachInternetGateway",
        "ec2:CreateEgressOnlyInternetGateway",
        "ec2:AttachEgressOnlyInternetGateway",
        "ec2:CreateDefaultVpc",
        "ec2:CreateDefaultSubnet",
        "ec2:CreateCarrierGateway"
      ],
      "Resource": ["*"]
    },
    "Condition": {
      ...
    }
  ]
}
```
Disallow Amazon Virtual Private Network (VPN) connections

This control prevents Virtual Private Network (VPN) connections (Site-to-Site VPN and Client VPN) to an Amazon Virtual Private Cloud (VPC).

⚠️ Note

Existing VPCs that have internet access retain their internet access.

This is a preventive control with elective guidance. By default, this control isn't enabled on any OUs.

The artifact for this control is the following service control policy (SCP).

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "GRDISALLOWVPNCONNECTIONS",
      "Effect": "Deny",
      "Action": [
        "ec2:CreateVPNGateway",
        "ec2:AttachVPNGateway",
        "ec2:CreateCustomerGateway",
        "ec2:CreateVpnConnection",
        "ec2:ModifyVpnConnection",
        "ec2:CreateClientVpnEndpoint",
        "ec2:ModifyClientVpnEndpoint",
        "ec2:AssociateClientVpnTargetNetwork",
        "ec2:AuthorizeClientVpnIngress"
      ]
    }
  ]
}
```
Disallow cross-region networking for Amazon EC2, Amazon CloudFront, and AWS Global Accelerator

This control prevents configuring cross-region networking connections from Amazon EC2, Amazon CloudFront, and AWS Global Accelerator services. It prevents VPC peering and transit gateway peering.

⚠️ **Note**

This control prevents Amazon EC2 VPC peering and Amazon EC2 transit gateway peering within a single Region, as well as across Regions. For this reason, this control may affect certain workloads in addition to your data residency posture.

This is a preventive control with elective guidance. By default, this control isn't enabled on any OUs.

The artifact for this control is the following service control policy (SCP).

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRDISALLOWCROSSREGIONNETWORKING",
            "Effect": "Deny",
            "Action": [
                "ec2:CreateVpcPeeringConnection",
                "ec2:AcceptVpcPeeringConnection",
                "ec2:CreateTransitGatewayPeeringAttachment",
                "ec2:AcceptTransitGatewayPeeringAttachment",
                "cloudfront:CreateDistribution",
                "cloudfront:UpdateDistribution",
                "globalaccelerator:Create*",
                "globalaccelerator:Update*"
            ]
        }
    ]
}
```
Detect whether public IP addresses for Amazon EC2 autoscaling are enabled through launch configurations

This control detects whether Amazon EC2 Auto Scaling groups have public IP addresses enabled through launch configurations.

This is a detective control with elective guidance. By default, this control isn’t enabled on any OUs.

In the console:

- The rule shows **Non-compliant** status if the launch configuration for an autoscaling group sets the value of the field `AssociatePublicIpAddress` set as **True**.

The artifact for this control is the following AWS Config rule.

```json
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether public IP addresses for Amazon EC2 Auto Scaling are enabled through launch configurations

Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'

Resources:
  AutoscalingLaunchConfigPublicIpDisabled:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Detects whether Amazon EC2 Auto Scaling groups have public IP addresses enabled through launch configurations. This rule is NON_COMPLIANT if the launch configuration for an Auto Scaling group has the value of the field `AssociatePublicIpAddress` set as True.
      Scope:
        ComplianceResourceTypes:
```
### Detect whether replication instances for AWS Database Migration Service are public

This control detects whether AWS Database Migration Service replication instances are public.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.

**In the console:**

- The rule shows **Non-compliant** status if the value of the `PubliclyAccessible` field is set as **True**.

The artifact for this control is the following AWS Config rule.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether replication instances for AWS Database Migration Service are public

Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'

MaximumExecutionFrequency:
  Type: String
  Default: 24hours
  Description: The frequency at which AWS Config will run evaluations for the rule.
  AllowedValues:
    - 1hour
    - 3hours
    - 6hours
    - 12hours
    - 24hours

Mappings:
  Settings:
    FrequencyMap:
      1hour  : One_Hour
      3hours : Three_Hours
```
Detect whether Amazon EBS snapshots are restorable by all AWS accounts

This control detects whether all AWS accounts have access to restore Amazon EBS snapshots.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.

In the console:

- The rule shows Non-compliant status if any snapshots have the RestorableByUserIds field set to the value All. In that case, the Amazon EBS snapshots are public.

The artifact for this control is the following AWS Config rule.

```
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether Amazon EBS snapshots are restorable by all AWS accounts

Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
```
MaximumExecutionFrequency:
  Type: String
  Default: 24hours
  Description: The frequency at which AWS Config will run evaluations for the rule.
  AllowedValues:
  - 1hour
  - 3hours
  - 6hours
  - 12hours
  - 24hours

Mappings:
  Settings:
    FrequencyMap:
    1hour   : One_Hour
    3hours  : Three_Hours
    6hours  : Six_Hours
    12hours : Twelve_Hours
    24hours : TwentyFour_Hours

Resources:
  EbsSnapshotPublicRestorableCheck:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Detects whether all AWS accounts have access to restore Amazon EBS snapshots. The rule is NON_COMPLIANT if any snapshots have the RestorableByUserIds field set to the value All. In that case, the Amazon EBS snapshots are public.
      Source:
        Owner: AWS
        SourceIdentifier: EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK
      MaximumExecutionFrequency:
        !FindInMap
        - Settings
        - FrequencyMap
        - !Ref MaximumExecutionFrequency

**Detect whether any Amazon EC2 instance has an associated public IPv4 address**

This control detects whether an Amazon Elastic Compute Cloud (Amazon EC2) instance has an associated public IPv4 address. This control applies only to IPv4 addresses.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.
In the console:

- The rule shows **Non-compliant** status if the public IP field is present in the Amazon EC2 instance configuration item.

The artifact for this control is the following AWS Config rule.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether any Amazon EC2 instance has an associated public IPv4 address

Parameters:
- ConfigRuleName:
  Type: 'String'
  Description: 'Name for the Config rule'

Resources:
- Ec2InstanceNoPublicIp:
  Type: AWS::Config::ConfigRule
  Properties:
    ConfigRuleName: !Sub ${ConfigRuleName}
    Description: Detects whether an Amazon Elastic Compute Cloud (Amazon EC2) instance has an associated public IPv4 address. The rule is NON_COMPLIANT if the public IP field is present in the Amazon EC2 instance configuration item.
    Scope:
      ComplianceResourceTypes:
        - AWS::EC2::Instance
  Source:
    Owner: AWS
    SourceIdentifier: EC2_INSTANCE_NO_PUBLIC_IP
```

**Detect whether Amazon S3 settings to block public access are set as true for the account**

This control periodically detects whether the required Amazon S3 settings to block public access are configured as true for the account, rather than for a bucket or an access point.

In the console:

- The rule shows **Non-compliant** status if at least one of the settings is false.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.
The artifact for this control is the following AWS Config rule.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to check whether Amazon S3 settings to block public access are set as true for the account.

Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
  PublicAccessBlockSetting:
    Type: 'String'
    Default: 'True'
  MaximumExecutionFrequency:
    Type: String
    Default: 24hours
    Description: The frequency at which AWS Config will run evaluations for the rule.
    AllowedValues:
      - 1hour
      - 3hours
      - 6hours
      - 12hours
      - 24hours

Mappings:
  Settings:
    FrequencyMap:
      1hour   : One_Hour
      3hours  : Three_Hours
      6hours  : Six_Hours
      12hours : Twelve_Hours
      24hours : TwentyFour_Hours

Resources:
  CheckForS3PublicAccessBlock:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Checks the Amazon S3 settings to block public access are set as true for the account. The rule is non-compliant if at-least one of the settings is false.
      Source:
        Owner: AWS
        SourceIdentifier: S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC
      Scope:
```
ComplianceResourceTypes:
  - AWS::S3::AccountPublicAccessBlock

InputParameters:
  IgnorePublicAcls: !Ref PublicAccessBlockSetting
  BlockPublicPolicy: !Ref PublicAccessBlockSetting
  BlockPublicAcls: !Ref PublicAccessBlockSetting
  RestrictPublicBuckets: !Ref PublicAccessBlockSetting

MaximumExecutionFrequency:
  !FindInMap
  - Settings
  - FrequencyMap
  - !Ref MaximumExecutionFrequency

**Detects whether an Amazon EKS endpoint is blocked from public access**

This control detects whether an Amazon Elastic Kubernetes Service (Amazon EKS) endpoint is blocked from public access.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.

**In the console:**

- The rule shows **Non-compliant** status if the endpoint is publicly accessible.

The artifact for this control is the following AWS Config rule.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether an Amazon EKS endpoint is blocked from public access

Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'

MaximumExecutionFrequency:
  Type: String
  Default: 24hours
  Description: The frequency at which AWS Config will run evaluations for the rule.
  AllowedValues:
    - 1hour
    - 3hours
    - 6hours
```
- 12hours
- 24hours

Mappings:
Settings:
  FrequencyMap:
    1hour : One_Hour
    3hours : Three_Hours
    6hours : Six_Hours
    12hours : Twelve_Hours
    24hours : TwentyFour_Hours

Resources:
  EKSEndpointNoPublicAccess:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Detects whether an Amazon Elastic Kubernetes Service (Amazon EKS) endpoint is publicly accessible. The rule is NON_COMPLIANT if the endpoint is publicly accessible.
      Source:
        Owner: AWS
        SourceIdentifier: EKS_ENDPOINT_NO_PUBLIC_ACCESS
      MaximumExecutionFrequency:
        !FindInMap
        - Settings
        - FrequencyMap
        - !Ref MaximumExecutionFrequency

**Detect whether an Amazon OpenSearch Service domain is in Amazon VPC**

This control detects whether an Amazon OpenSearch Service domain is in Amazon VPC.

This is a detective control with elective guidance. By default, this control isn’t enabled on any OUs.

**In the console:**

- The rule shows **Non-compliant** status if the OpenSearch Service domain endpoint is public.

The artifact for this control is the following AWS Config rule.
Description: Configure AWS Config rule to detect whether an Amazon OpenSearch Service domain is in Amazon VPC

Parameters:
ConfigRuleName:
  Type: 'String'
  Description: 'Name for the Config rule'

MaximumExecutionFrequency:
  Type: String
  Default: 24hours
  Description: The frequency at which AWS Config will run evaluations for the rule.
  AllowedValues:
    - 1hour
    - 3hours
    - 6hours
    - 12hours
    - 24hours

Mappings:
  Settings:
    FrequencyMap:
      1hour   : One_Hour
      3hours  : Three_Hours
      6hours  : Six_Hours
      12hours : Twelve_Hours
      24hours : TwentyFour_Hours

Resources:
ElasticsearchInVpcOnly:
  Type: AWS::Config::ConfigRule
  Properties:
    ConfigRuleName: !Sub ${ConfigRuleName}
    Description: Detects whether Amazon OpenSearch Service domains are in Amazon Virtual Private Cloud (Amazon VPC). The rule is NON_COMPLIANT if the OpenSearch Service domain endpoint is public.
    Source:
      Owner: AWS
      SourceIdentifier: ELASTICSEARCH_IN_VPC_ONLY
    MaximumExecutionFrequency:
      !FindInMap
      - Settings
      - FrequencyMap
Detect whether any Amazon EMR cluster master nodes have public IP addresses

This control detects whether any Amazon EMR cluster master nodes have public IP addresses.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs

In the console:

- The rule shows **Non-compliant** status if a master node has a public IP address.
- This control checks clusters that are in RUNNING or WAITING state.

The artifact for this control is the following AWS Config rule.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether any Amazon EMR cluster master nodes have public IP addresses

Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'

MaximumExecutionFrequency:
  Type: String
  Default: 24hours
  Description: The frequency at which AWS Config will run evaluations for the rule.
  AllowedValues:
    - 1hour
    - 3hours
    - 6hours
    - 12hours
    - 24hours

Mappings:
  Settings:
    FrequencyMap:
      1hour : One_Hour
      3hours : Three_Hours
      6hours : Six_Hours
      12hours : Twelve_Hours
      24hours : TwentyFour_Hours
```
Detect whether the AWS Lambda function policy attached to the Lambda resource blocks public access

This control detects whether the AWS Lambda function policy attached to the Lambda resource blocks public access.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.

In the console:

- The rule shows **Non-compliant** status if the Lambda function policy allows public access.

The artifact for this control is the following AWS Config rule.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether the AWS Lambda function policy attached to the Lambda resource blocks public access

Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'

Resources:
  LambdaFunctionPublicAccessProhibited:
```
Type: AWS::Config::ConfigRule
Properties:
  ConfigRuleName: !Sub ${ConfigRuleName}
  Description: Detects whether the AWS Lambda function policy attached to the Lambda resource prohibits public access. The rule is NON_COMPLIANT if the Lambda function policy allows public access.
  Scope:
    ComplianceResourceTypes:
    - AWS::Lambda::Function
  Source:
    Owner: AWS
    SourceIdentifier: LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED

Detect whether public routes exist in the route table for an Internet Gateway (IGW)

This control detects whether public routes exist in the route table associated with an Internet Gateway (IGW).

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.

In the console:

- The rule shows Non-compliant status if a route has a destination CIDR block of 0.0.0.0/0 or ::/0 or if a destination CIDR block does not match the rule parameter.

Note

This control fails if any of the routes to an IGW has a destination CIDR block of 0.0.0.0/0 or ::/0.

The artifact for this control is the following AWS Config rule.

AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether public routes exist in the route table for an Internet Gateway (IGW)

Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
Resources:
  NoUnrestrictedRouteToIgw:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Detects whether public routes exist in the route table associated with an Internet Gateway (IGW). The rule is NON_COMPLIANT if a route has a destination CIDR block of '0.0.0.0/0' or '::/0' or if a destination CIDR block does not match the rule parameter.
      Scope:
        ComplianceResourceTypes:
        - AWS::EC2::RouteTable
      Source:
        Owner: AWS
        SourceIdentifier: NO_UNRESTRICTED_ROUTE_TO_IGW

Detect whether Amazon Redshift clusters are blocked from public access

This control detects whether Amazon Redshift clusters are blocked from public access.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.

In the console:

- The rule shows Non-compliant status if the publiclyAccessible field is set to True in the cluster configuration item.

The artifact for this control is the following AWS Config rule.

AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether Amazon Redshift clusters are blocked from public access

Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'

Resources:
  RedshiftClusterPublicAccessCheck:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
Description: Detects whether Amazon Redshift clusters are blocked from public access. The rule is NON_COMPLIANT if the publiclyAccessible field is true in the cluster configuration item.

Scope:

ComplianceResourceTypes:
- AWS::Redshift::Cluster

Source:

Owner: AWS
SourceIdentifier: REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK

Detect whether an Amazon SageMaker notebook instance allows direct internet access

This control detects whether an Amazon SageMaker notebook instance allows direct internet access.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.

In the console:

- The rule shows Non-compliant status if Amazon SageMaker notebook instances allow direct internet access.

The artifact for this control is the following AWS Config rule.

```
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether an Amazon SageMaker notebook instance allows direct internet access

Parameters:
ConfigRuleName:
  Type: 'String'
  Description: 'Name for the Config rule'

MaximumExecutionFrequency:
  Type: String
  Default: 24hours
  Description: The frequency at which AWS Config will run evaluations for the rule.
  AllowedValues:
  - 1hour
  - 3hours
  - 6hours
  - 12hours
  - 24hours
```
Mappings:

Settings:
FrequencyMap:
  1hour  : One_Hour
  3hours : Three_Hours
  6hours : Six_Hours
  12hours: Twelve_Hours
  24hours: TwentyFour_Hours

Resources:
SagemakerNotebookNoDirectInternetAccess:
  Type: AWS::Config::ConfigRule
  Properties:
    ConfigRuleName: !Sub ${ConfigRuleName}
    Description: Detects whether direct internet access is allowed for an Amazon SageMaker notebook instance. The rule is NON_COMPLIANT if Amazon SageMaker notebook instances allow direct internet access.
    Source:
      Owner: AWS
      SourceIdentifier: SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS
    MaximumExecutionFrequency:
      !FindInMap
      - Settings
      - FrequencyMap
      - !Ref MaximumExecutionFrequency

Detect whether any Amazon VPC subnets are assigned a public IP address

This control detects whether Amazon Virtual Private Cloud (Amazon VPC) subnets are assigned a public IP address.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.

In the console:

• The rule shows Non-compliant status if the Amazon VPC has subnets that are assigned a public IP address.

The artifact for this control is the following AWS Config rule.

AWSTemplateFormatVersion: 2010-09-09
Description: Detect whether any Amazon VPC subnets are assigned a public IP address
Detect whether AWS Systems Manager documents owned by the account are public

This control detects whether AWS Systems Manager documents owned by the account are public.

This is a detective control with elective guidance. By default, this control isn't enabled on any OUs.

In the console: The rule shows **Non-compliant** status if any documents with owner 'Self' are public.

The artifact for this control is the following AWS Config rule.

```json
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rule to detect whether AWS Systems Manager documents owned by the account are public

Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'

MaximumExecutionFrequency:
  Type: String
```
Default: 24hours
Description: The frequency at which AWS Config will run evaluations for the rule.
AllowedValues:
- 1hour
- 3hours
- 6hours
- 12hours
- 24hours

Mappings:
Settings:
FrequencyMap:
  1hour : One_Hour
  3hours : Three_Hours
  6hours : Six_Hours
  12hours : Twelve_Hours
  24hours : TwentyFour_Hours

Resources:
SsmDocumentNotPublic:
  Type: AWS::Config::ConfigRule
  Properties:
    ConfigRuleName: !Sub ${ConfigRuleName}
    Description: Detects whether AWS Systems Manager (SSM) documents owned by the account are public. This rule is NON_COMPLIANT if any documents with owner 'Self' are public.
    Source:
      Owner: AWS
      SourceIdentifier: SSM_DOCUMENT_NOT_PUBLIC
    MaximumExecutionFrequency:
      !FindInMap
      - Settings
      - FrequencyMap
      - !Ref MaximumExecutionFrequency

Deny access to AWS based on the requested AWS Region

*This control is commonly referred to as the Region deny control, or landing zone Region deny control.*

This control disallows access to unlisted operations in global and regional services outside of the specified Regions. That includes all Regions where AWS Control Tower is not available, as well as all Regions not selected for governance in the Landing zone settings page. Actions are allowed as usual in Regions with Governed status.
Note

Certain global AWS services, such as AWS Identity and Access Management (IAM) and AWS Organizations, are exempt from data residency controls. Those services are specified in the SCP example code that follows.

This is an elective control with preventive guidance. It is the primary control associated with the **Region deny** action. For more information, see [Configure the Region deny control](#).

The format for this control is based on the following SCP.

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "GRREGIONDENY",
      "Effect": "Deny",
  }
}
```
"devicefarm:*",
"directconnect:*",
"discovery-marketplace:*",
"ec2:DescribeRegions",
"ec2:DescribeTransitGateways",
"ec2:DescribeVpnGateways",
"ec2-public:*",
"fms:*",
"freetier:*",
"globalaccelerator:*",
"health:*",
"iam:*",
"importexport:*",
"invoicing:*",
"iq:*",
"kms:*",
"license-manager:ListReceivedLicenses",
"lightsail:Get**",
"mobileanalytics:*",
"networkmanager:*",
"notifications-contacts:*",
"notifications:*",
"organizations:*",
"payments:*",
"pricing:*",
"resource-explorer-2:*",
"route53-recovery-cluster:*",
"route53-recovery-control-config:*",
"route53-recovery-readiness:*",
"route53:*",
"route53domains:*",
"s3:CreateMultiRegionAccessPoint",
"s3:DeleteMultiRegionAccessPoint",
"s3:DescribeMultiRegionAccessPointOperation",
"s3:GetAccountPublicAccessBlock",
"s3:GetBucketLocation",
"s3:GetBucketPolicyStatus",
"s3:GetBucketPublicAccessBlock",
"s3:GetMultiRegionAccessPoint",
"s3:GetMultiRegionAccessPointPolicy",
"s3:GetMultiRegionAccessPointPolicyStatus",
"s3:GetStorageLensConfiguration",
"s3:GetStorageLensDashboard",
"s3:ListAllMy_buckets",
Based on this example SCP format, AWS Control Tower adds your governed Regions into the `aws:RequestedRegion` statement. You cannot exclude your home Region. Actions not listed in the SCP are not permitted.

**Region deny control applied to the OU**

*This control is commonly referred to as the OU Region deny control, or the configurable Region deny control.*
This control disallows access to unlisted operations in global and regional AWS services, outside of the specified Regions for an organizational unit (OU).

If you enforce this control, the configurations for the OU can conflict with the landing zone version of this control. For more information, see "Policy evaluation of SCP controls" in Region deny control applied to the OU.

**CT.MULTISERVICE.PV.1**: Deny access to AWS based on the requested AWS Region for an organizational unit

**Service**: Multiple AWS services

- **Control objective**: Protect configurations
- **Implementation**: Service control policy (SCP)
- **Control behavior**: Preventive
- **Control owner**: AWS Control Tower
- **Groups**: Digital sovereignty

**Enable this control from the console**

In the AWS Control Tower console, you can view the OUs on which this control is enabled, if any, by navigating to the Control details page for this control.

**To enable this control from the Control details page**

1. Select **Enable control** in the upper right
2. Select the target OU, then select **Next** to continue.
3. Select the Regions you wish to activate. You must select at least one Region.
4. You can add **NotAction** elements, IAM principals, and tags.
5. You'll be able to see a summary of your selected values before you enable the control.
6. Select **Enable control** at the lower right.

For more information, see Region deny control applied to the OU.
CT.MULTISERVICE.PV.1: Deny access to AWS based on the requested AWS Region for an organizational unit

The OU Region deny control, CT.MULTISERVICE.PV.1, is configurable. You can select specific OUs to which it applies, rather than applying it to your entire AWS Control Tower landing zone. This control accepts one or more parameters, such as AllowedRegions, ExemptedPrincipalARNs, and ExemptedActions, which describe operations that are allowed for accounts that are part of this OU.

- **AllowedRegions**: Specifies the Regions selected, in which the OU is allowed to operate. This parameter is mandatory.
- **ExemptedPrincipalARNs**: Specifies the IAM principals that are exempt from this control, so that they are allowed to operate certain AWS services globally.
- **ExemptedActions**: Specifies actions that are exempt from this control, so that the actions are allowed.

Interactions between the separate Region deny controls for the landing zone and the OU can be complicated to predict. They are predictable with the logic by which SCPs are evaluated by AWS.

**Policy evaluation of SCP controls**

The policy evaluation process involves checking all applicable policies, starting from the most permissive and gradually moving towards the most restrictive. Any SCP applied at the Root level will impact all accounts and OUs, unless it is overridden by a more specific policy.

**Evaluation Logic**: When a request is made to perform an action (for example, launching an Amazon EC2 instance), AWS evaluates policies to determine whether the action is allowed or denied. The evaluation logic follows these rules:

- **Explicit Deny Overrides All**: If any policy explicitly denies the requested action, that denial takes precedence over all other policies.
- **Explicit Allow Overrides Implicit Deny**: If a policy explicitly allows the action and no higher-level policy explicitly denies it, the action is allowed.
- **Inherited Allow and No Explicit Deny**: If there is no explicit allow or deny at the requested level, AWS looks at higher-level policies. If there is an inherited allow and no explicit deny, the action is allowed.
- **Explicit Deny at a Higher Level**: If there's an explicit deny in a higher-level policy, but no explicit allow or deny at the requested level, the action is denied.
For more information about the evaluation logic, see [SCP evaluation](https://docs.aws.amazon.com/organizations/latest/userguide/identifiers.html) in the AWS Organizations documentation.

**Note**

With this control, you can allow any AWS Region at the OU level, even if your landing zone does not govern that Region, by design. We recommend that you use caution when allowing Regions that your AWS Control Tower landing zone does not govern.

**CLI Example**

This example shows how to enable this control, with parameters, from the CLI.

```bash
aws controltower enable-control \
    --target-identifier arn:aws:organizations::01234567890:ou/o-EXAMPLE/ou-zxx-\n    zxx0zzz2 \
    --control-identifier arn:aws:controltower:us-east-1::control/EXAMPLE_NAME \
    --parameters '[{"key":"AllowedRegions","value":["us-east-1","us-west-2"]},{"key":"ExemptedPrincipalArns","value":["arn:aws:iam::*:role/\nReadOnly","arn:aws:sts::*:assumed-role/ReadOnly/*"]},{"key":"ExemptedActions","value":\n["logs:DescribeLogGroups","logs:StartQuery","logs:GetQueryResults"]}]
```

**Validating parameters**

When you enter a parameter into the OU Region deny control, AWS Control Tower validates the parameter's syntax and checks it against JSON datatypes. AWS Control Tower does not make semantic validations for domain-specific correctness. This is the same approach that is followed by AWS Organizations.

Parameters for this control are entered by means of a JSON schema.

Here is the SCP template of an example JSON schema for the OU-level Region deny control. In the AWS Control Tower console, you can view it on the **Artifacts** tab of the **Control details** page.

This short example schema shows that the **AllowedRegions**, **ExemptedActions** and **ExemptedPrincipalArns** parameters accept a list of strings. Also, you can add descriptions to the schema, or restrict allowed values to be a subset of pre-defined values, using enumerated types (enums).
The following example shows a full SCP artifact for the control. It shows the actions and principals that are exempted by default when you apply this control to an OU. Remember that **AllowedRegions** is a mandatory parameter for this control. You can view the most recent version of this SCP in the AWS Control Tower console.
"Effect": "Deny",
"NotAction": [
  {{ExemptedActions}}
  "a4b:*",
  "access-analyzer:*",
  "account:*",
  "acm:*",
  "activate:*",
  "artifact:*",
  "aws-marketplace-management:*",
  "aws-marketplace:*",
  "aws-portal:*",
  "billing:*",
  "billingconductor:*",
  "budgets:*",
  "ce:*",
  "chatbot:*",
  "chime:*",
  "cloudfront:*",
  "cloudtrail:LookupEvents",
  "compute-optimizer:*",
  "config:*",
  "consoleapp:*",
  "consolidatedbilling:*",
  "cur:*",
  "datapipeline:GetAccountLimits",
  "devicefarm:*",
  "directconnect:*",
  "ec2:DescribeRegions",
  "ec2:DescribeTransitGateways",
  "ec2:DescribeVpnGateways",
  "ecr-public:*",
  "fms:*",
  "freetier:*",
  "globalaccelerator:*",
  "health:*",
  "iam:*",
  "importexport:*",
  "invoicing:*",
  "iq:*",
  "kms:*",
  "license-manager:ListReceivedLicenses",
  "lightsail:Get**",
  "mobileanalytics:*"}
"networkmanager:*",
"notifications-contacts:*",
"notifications:*",
"organizations:*",
"payments:*",
"pricing:*",
"quicksight:DescribeAccountSubscription",
"resource-explorer-2:*",
"route53-recovery-cluster:*",
"route53-recovery-control-config:*",
"route53-recovery-readiness:*",
"route53:*",
"route53domains:*",
"s3:CreateMultiRegionAccessPoint",
"s3:DeleteMultiRegionAccessPoint",
"s3:DescribeMultiRegionAccessPointOperation",
"s3:GetAccountPublicAccessBlock",
"s3:GetBucketLocation",
"s3:GetBucketPolicyStatus",
"s3:GetBucketPublicAccessBlock",
"s3:GetMultiRegionAccessPoint",
"s3:GetMultiRegionAccessPointPolicy",
"s3:GetMultiRegionAccessPointPolicyStatus",
"s3:GetStorageLensConfiguration",
"s3:GetStorageLensDashboard",
"s3:GetMultiRegionAccessPoints",
"s3:GetMultiRegionAccessPointPolicy",
"s3:GetMultiRegionAccessPointPolicyStatus",
"s3:GetStorageLensConfiguration",
"s3:GetStorageLensDashboard",
"s3:ListAllMyBuckets",
"s3:ListMultiRegionAccessPoints",
"s3:ListStorageLensConfigurations",
"s3:PutAccountPublicAccessBlock",
"s3:PutMultiRegionAccessPointPolicy",
"savingsplans:*",
"shield:*",
"sso:*",
"sts:*",
"support:*",
"supportapp:*",
"supportplans:*",
"sustainability:*",
"tag:GetResources",
"tax:*",
"trustedadvisor:*",
"vendor-insights:ListEntitledSecurityProfiles",
"waf-regional:*",
"waf:*"
Optional controls

Optional controls in AWS Control Tower are applied at the OU level. You can activate and deactivate these optional controls through the AWS Control Tower console, or by means of the control APIs.

AWS Control Tower offers several types of optional controls:

- **Proactive controls**, which are based on AWS CloudFormation hooks.
- Security Hub controls, which are based on AWS Config rules – these controls are owned by Security Hub and integrated with AWS Control Tower, by means of the Service-Managed Standard: AWS Control Tower.
- Digital sovereignty controls, which are elective controls based on SCPs and AWS Config rules, implemented within AWS Control Tower. This group includes the data residency controls.
- Strongly recommended controls, which are based on SCPs and AWS Config rules, implemented within AWS Control Tower.
Elective controls, which are based on SCPs and AWS Config rules, implemented within AWS Control Tower.

The strongly recommended and elective controls owned by AWS Control Tower are optional, which means that you can customize the level of enforcement for OUs in your landing zone by choosing which ones to enable. Optional controls are not enabled by default. For more information about optional controls, see the following control reference pages in the next sections.

Note

It is important to know that some detective controls in AWS Control Tower do not operate in certain AWS Regions where AWS Control Tower is available, because those Regions do not support the required underlying functionality. As a result, when you deploy a detective control, the control may not be operating in all Regions that you govern with AWS Control Tower. For details, see Control limitations.

You can view the Regions for each control in the AWS Control Tower console.

For more information about the detective controls that cannot be deployed in certain Regions, see the Regional services list documentation to learn more about the Regions where AWS Config is available. If the detective control is implemented as a managed AWS Config rule, see the Security Hub controls reference documentation.

Strongly recommended controls

Strongly recommended controls are owned by AWS Control Tower. They are based on best practices for well-architected multi-account environments. These controls are not enabled by default, and they can be deactivated through the AWS Control Tower console or the control APIs. Following, you'll find a reference for each of the strongly recommended controls available in AWS Control Tower.

Topics

• Disallow Creation of Access Keys for the Root User
• Disallow Actions as a Root User
• Detect Whether Encryption is Enabled for Amazon EBS Volumes Attached to Amazon EC2 Instances
• Detect Whether Unrestricted Incoming TCP Traffic is Allowed
- Detect Whether Unrestricted Internet Connection Through SSH is Allowed
- Detect Whether MFA for the Root User is Enabled
- Detect Whether Public Read Access to Amazon S3 Buckets is Allowed
- Detect Whether Public Write Access to Amazon S3 Buckets is Allowed
- Detect Whether Amazon EBS Volumes are Attached to Amazon EC2 Instances
- Detect Whether Amazon EBS Optimization is Enabled for Amazon EC2 Instances
- Detect Whether Public Access to Amazon RDS Database Instances is Enabled
- Detect Whether Public Access to Amazon RDS Database Snapshots is Enabled
- Detect Whether Storage Encryption is Enabled for Amazon RDS Database Instances
- Detect whether an account has AWS CloudTrail or CloudTrail Lake enabled

**Disallow Creation of Access Keys for the Root User**

Secures your AWS accounts by disallowing creation of access keys for the root user. We recommend that you instead create access keys for the IAM users or IAM Identity Center users, which grant limited permissions to interact with your AWS account. This is a preventive control with strongly recommended guidance. By default, this control is not enabled.

The artifact for this control is the following SCP.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "GRRESTRICTROOTUSERACCESSKEYS",
         "Effect": "Deny",
         "Action": "iam:CreateAccessKey",
         "Resource": ["*"]
      },
      "Condition": {
         "StringLike": {
            "aws:PrincipalArn": [
               "arn:aws:iam::*:root"
            ]
         }
      }
   }
}
```
Disallow Actions as a Root User

Secures your AWS accounts by disallowing account access with root user credentials, which are credentials of the account owner that allow unrestricted access to all resources in the account. Instead, we recommend that you create IAM Identity Center users for everyday interaction with your AWS account. This is a preventive control with strongly recommended guidance. By default, this control is not enabled.

The artifact for this control is the following SCP.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "GRRESTRICTROOTUSER",
      "Effect": "Deny",
      "Action": "*",
      "Resource": ["*"]
    },
    "Condition": {
      "StringLike": {
        "aws:PrincipalArn": ["arn:aws:iam::*:root"]
      }
    }
  ]
}
```

Detect Whether Encryption is Enabled for Amazon EBS Volumes Attached to Amazon EC2 Instances

This control detects whether the Amazon EBS volumes attached to an Amazon EC2 instance are encrypted. This control does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control isn't enabled on any OUs.

The artifact for this control is the following AWS Config rule.
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check for encryption of all storage volumes attached to compute
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
Resources:
  CheckForEncryptedVolumes:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Checks whether EBS volumes that are in an attached state are encrypted.
      Source:
        Owner: AWS
        SourceIdentifier: ENCRYPTED_VOLUMES
      Scope:
        ComplianceResourceTypes:
          - AWS::EC2::Volume

Detect Whether Unrestricted Incoming TCP Traffic is Allowed

This control helps reduce a server's exposure to risk by detecting whether unrestricted incoming TCP traffic is allowed. It detects whether internet connections are enabled to Amazon EC2 instances through services such as Remote Desktop Protocol (RDP). This control does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control is not enabled.

⚠️ Note

This control fails if any of the rules in a security group allow ingress traffic from 0.0.0.0/0 or ::/0 for those ports.

The artifact for this control is the following AWS Config rule.

AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check whether security groups that are in use disallow unrestricted incoming TCP traffic to the specified ports.
Parameters:
ConfigRuleName:
  Type: 'String'
  Description: 'Name for the Config rule'

blockedPort1:
  Type: String
  Default: '20'
  Description: Blocked TCP port number.

blockedPort2:
  Type: String
  Default: '21'
  Description: Blocked TCP port number.

blockedPort3:
  Type: String
  Default: '3389'
  Description: Blocked TCP port number.

blockedPort4:
  Type: String
  Default: '3306'
  Description: Blocked TCP port number.

blockedPort5:
  Type: String
  Default: '4333'
  Description: Blocked TCP port number.

Conditions:

blockedPort1:
  Fn::Not:
    - Fn::Equals:
      - '
      - Ref: blockedPort1

blockedPort2:
  Fn::Not:
    - Fn::Equals:
      - '
      - Ref: blockedPort2

blockedPort3:
  Fn::Not:
    - Fn::Equals:
      - '
      - Ref: blockedPort3

blockedPort4:
  Fn::Not:
    - Fn::Equals:
      - '
      - Ref: blockedPort4

Optional controls
2354
Resources:
    CheckForRestrictedCommonPortsPolicy:
      Type: AWS::Config::ConfigRule
      Properties:
        ConfigRuleName: !Sub ${ConfigRuleName}
        Description: Checks whether security groups that are in use disallow unrestricted incoming TCP traffic to the specified ports.
        InputParameters:
          blockedPort1:
            Fn::If:
              - blockedPort1
              - Ref: blockedPort1
              - Ref: AWS::NoValue
          blockedPort2:
            Fn::If:
              - blockedPort2
              - Ref: blockedPort2
              - Ref: AWS::NoValue
          blockedPort3:
            Fn::If:
              - blockedPort3
              - Ref: blockedPort3
              - Ref: AWS::NoValue
          blockedPort4:
            Fn::If:
              - blockedPort4
              - Ref: blockedPort4
              - Ref: AWS::NoValue
          blockedPort5:
            Fn::If:
              - blockedPort5
              - Ref: blockedPort5
              - Ref: AWS::NoValue
      Scope:
        ComplianceResourceTypes:
          - AWS::EC2::SecurityGroup
      Source:
        Owner: AWS
Detect Whether Unrestricted Internet Connection Through SSH is Allowed

This control detects whether internet connections are allowed through remote services such as the Secure Shell (SSH) protocol. This control does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control is not enabled.

⚠️ **Note**

This control fails if any of the rules in a security group allow ingress traffic from 0.0.0.0/0 or ::/0 for SSH traffic.

The artifact for this control is the following AWS Config rule.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check whether security groups that are in use disallow SSH
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
Resources:
  CheckForRestrictedSshPolicy:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Checks whether security groups that are in use disallow unrestricted incoming SSH traffic.
      Scope:
        ComplianceResourceTypes:
        - AWS::EC2::SecurityGroup
    Source:
      Owner: AWS
      SourceIdentifier: INCOMING_SSH_DISABLED
```

Detect Whether MFA for the Root User is Enabled

This control detects whether multi-factor authentication (MFA) is enabled for the root user of the management account. MFA reduces vulnerability risks from weak authentication by requiring an additional authentication code after the user name and password are successful. This control
does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to require MFA for root access to accounts
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
  MaximumExecutionFrequency:
    Type: String
    Default: 24hours
    Description: The frequency that you want AWS Config to run evaluations for the rule.
    AllowedValues:
      - 1hour
      - 3hours
      - 6hours
      - 12hours
      - 24hours
Mappings:
  Settings:
    FrequencyMap:
      1hour   : One_Hour
      3hours  : Three_Hours
      6hours  : Six_Hours
      12hours : Twelve_Hours
      24hours : TwentyFour_Hours
Resources:
  CheckForRootMfa:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Checks whether the root user of your AWS account requires multi-factor authentication for console sign-in.
      Source:
        Owner: AWS
        SourceIdentifier: ROOT_ACCOUNT_MFA_ENABLED
      MaximumExecutionFrequency:
        !FindInMap
        - Settings
        - FrequencyMap
```
Detect Whether Public Read Access to Amazon S3 Buckets is Allowed

This control detects whether public read access is allowed to Amazon S3 buckets. It helps you maintain secure access to data stored in the buckets. This control does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check that your S3 buckets do not allow public access
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
Resources:
  CheckForS3PublicRead:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Checks that your S3 buckets do not allow public read access. If an S3 bucket policy or bucket ACL allows public read access, the bucket is noncompliant.
      Source:
        Owner: AWS
        SourceIdentifier: S3_BUCKET_PUBLIC_READ_PROHIBITED
      Scope:
        ComplianceResourceTypes:
        - AWS::S3::Bucket
```

Detect Whether Public Write Access to Amazon S3 Buckets is Allowed

This control detects whether public write access is allowed to Amazon S3 buckets. It helps you maintain secure access to data stored in the buckets. This control does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```
AWSTemplateFormatVersion: 2010-09-09
```
Description: Configure AWS Config rules to check that your S3 buckets do not allow public access

Parameters:
- ConfigRuleName:
  Type: 'String'
  Description: 'Name for the Config rule'

Resources:
- CheckForS3PublicWrite:
  Type: AWS::Config::ConfigRule
  Properties:
    ConfigRuleName: !Sub ${ConfigRuleName}
    Description: Checks that your S3 buckets do not allow public write access. If an S3 bucket policy or bucket ACL allows public write access, the bucket is noncompliant.
    Source:
      Owner: AWS
      SourceIdentifier: S3_BUCKET_PUBLIC_WRITE_PROHIBITED
    Scope:
      ComplianceResourceTypes:
      - AWS::S3::Bucket

**Detect Whether Amazon EBS Volumes are Attached to Amazon EC2 Instances**

This control detects whether an Amazon EBS volume device persists independently from an Amazon EC2 instance. This control does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```json
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check whether EBS volumes are attached to EC2 instances
Parameters:
- ConfigRuleName:
  Type: 'String'
  Description: 'Name for the Config rule'
- deleteOnTermination:
  Type: 'String'
  Default: 'None'
  Description: 'Check for Delete on termination'
Conditions:
- deleteOnTermination:
  Fn::Not:
```
Detect Whether Amazon EBS Optimization is Enabled for Amazon EC2 Instances

Detects whether Amazon EC2 instances are launched without an Amazon EBS volume that is optimized for performance. Amazon EBS-optimized volumes minimize contention between Amazon EBS I/O and other traffic from your instance. This control does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check whether EBS optimization is enabled for your EC2 instances that can be EBS-optimized
Parameters:
 ConfigRuleName:
   Type: 'String'
   Description: 'Name for the Config rule'
Resources:
 CheckForEbsOptimizedInstance:
   Type: AWS::Config::ConfigRule
   Properties:
```

Optional controls
Detect Whether Public Access to Amazon RDS Database Instances is Enabled

Detects whether your Amazon RDS database instances allow public access. You can secure your Amazon RDS database instances by disallowing public access. This control does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check whether Amazon RDS instances are not publicly accessible.
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
Resources:
  CheckForRdsPublicAccess:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Checks whether the Amazon Relational Database Service (RDS) instances are not publicly accessible. The rule is non-compliant if the publiclyAccessible field is true in the instance configuration item.
      Source:
        Owner: AWS
        SourceIdentifier: RDS_INSTANCE_PUBLIC_ACCESS_CHECK
    Scope:
      ComplianceResourceTypes:
        - AWS::RDS::DBInstance
```
Detect Whether Public Access to Amazon RDS Database Snapshots is Enabled

Detects whether your Amazon RDS database snapshots have public access enabled. You can protect your information by disabling public access. This control does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```json
AWSTemplateFormatVersion: 2010-09-09
Description: Checks if Amazon Relational Database Service (Amazon RDS) snapshots are public.
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
Resources:
  CheckForRdsStorageEncryption:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${{ConfigRuleName}}
      Description: Checks if Amazon Relational Database Service (Amazon RDS) snapshots are public. The rule is non-compliant if any existing and new Amazon RDS snapshots are public.
      Source:
        Owner: AWS
        SourceIdentifier: RDS_SNAPSHOTS_PUBLIC_PROHIBITED
      Scope:
        ComplianceResourceTypes:
          - AWS::RDS::DBSnapshot
```

Detect Whether Storage Encryption is Enabled for Amazon RDS Database Instances

Detects Amazon RDS database instances that are not encrypted at rest. You can secure your Amazon RDS database instances at rest by encrypting the underlying storage for database instances and their automated backups, Read Replicas, and snapshots. This control does not change the status of the account. This is a detective control with strongly recommended guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```json
AWSTemplateFormatVersion: 2010-09-09
```
Description: Configure AWS Config rules to check whether storage encryption is enabled for your RDS DB instances

Parameters:
- ConfigRuleName:
  - Type: 'String'
  - Description: 'Name for the Config rule'

Resources:
- CheckForRdsStorageEncryption:
  - Type: AWS::Config::ConfigRule
  - Properties:
    - ConfigRuleName: !Sub ${ConfigRuleName}
    - Description: Checks whether storage encryption is enabled for your RDS DB instances.

Source:
- Owner: AWS
- SourceIdentifier: RDS_STORAGE_ENCRYPTED

Scope:
- ComplianceResourceTypes:
  - AWS::RDS::DBInstance

Detect whether an account has AWS CloudTrail or CloudTrail Lake enabled

This control detects whether an account has AWS CloudTrail or CloudTrail Lake enabled. The rule is NON_COMPLIANT if either CloudTrail or CloudTrail Lake is not enabled in an account. This is a detective control with strongly recommended guidance. By default, this control is not enabled on any OUs.

The artifact for this control is the following AWS Config rule.

AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to detect whether an account has AWS CloudTrail or CloudTrail Lake enabled.

Parameters:
- ConfigRuleName:
  - Type: 'String'
  - Description: 'Name for the Config rule'

Resources:
- CheckForCloudtrailEnabled:
  - Type: AWS::Config::ConfigRule
  - Properties:
Elective controls

Elective controls enable you to lock down or track attempts at performing commonly restricted actions in an AWS enterprise environment. These controls are not enabled by default, and can be disabled. Following, you'll find a reference for the elective controls available in AWS Control Tower. The elective controls specifically for data residency are collected into a separate section, Controls that enhance data residency protection.

Topics

- [Disallow Changes to Encryption Configuration for Amazon S3 Buckets](#) [Previously: Enable Encryption at Rest for Log Archive]
- [Disallow Changes to Logging Configuration for Amazon S3 Buckets](#) [Previously: Enable Access Logging for Log Archive]
- [Disallow Changes to Bucket Policy for Amazon S3 Buckets](#) [Previously: Disallow Policy Changes to Log Archive]
- [Disallow Changes to Lifecycle Configuration for Amazon S3 Buckets](#) [Previously: Set a Retention Policy for Log Archive]
- [Disallow Changes to Replication Configuration for Amazon S3 Buckets](#)
- [Disallow Delete Actions on Amazon S3 Buckets Without MFA](#)
- [Detect Whether MFA is Enabled for AWS IAM Users](#)
- [Detect Whether MFA is Enabled for AWS IAM Users of the AWS Console](#)
- [Detect Whether Versioning for Amazon S3 Buckets is Enabled](#)
- [Disallow management of resource types, modules, and hooks within the AWS CloudFormation registry](#)
Disallow Changes to Encryption Configuration for Amazon S3 Buckets [Previously: Enable Encryption at Rest for Log Archive]

This control disallows changes to encryption for all Amazon S3 buckets. This is a preventive control with elective guidance. By default, this control is not enabled.

The artifact for this control is the following service control policy (SCP).

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "GRAUDITBUCKETENCRYPTIONENABLED",
         "Effect": "Deny",
         "Action": [
            "s3:PutEncryptionConfiguration"
         ],
         "Resource": ["*"]
      }
   ]
}
```

Disallow Changes to Logging Configuration for Amazon S3 Buckets [Previously: Enable Access Logging for Log Archive]

This control disallows changes to logging configuration for all Amazon S3 buckets. This is a preventive control with elective guidance. By default, this control is not enabled.

The artifact for this control is the following SCP.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "GRAUDITBUCKETLOGGINGENABLED",
         "Effect": "Deny",
         "Action": [
            "s3:PutBucketLoggingConfiguration"
         ],
         "Resource": ["*"]
      }
   ]
}
```
Optional controls

## Disallow Changes to Bucket Policy for Amazon S3 Buckets [Previously: Disallow Policy Changes to Log Archive]

This control disallows changes to bucket policy for all Amazon S3 buckets. This is a preventive control with elective guidance. By default, this control is not enabled.

The artifact for this control is the following SCP.

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Sid": "GRAUDITBUCKETPOLICYCHANGESPROHIBITED",
         "Effect": "Deny",
         "Action": ["s3:PutBucketPolicy"],
         "Resource": ["*"]
      }
   ],
   "Condition": {
      "ArnNotLike": {
         "aws:PrincipalARN":"arn:aws:iam::*:role/AWSControlTowerExecution"
      }
   }
}
```
Disallow Changes to Lifecycle Configuration for Amazon S3 Buckets [Previously: Set a Retention Policy for Log Archive]

This control disallows lifecycle configuration changes for all Amazon S3 buckets. This is a preventive control with elective guidance. By default, this control is not enabled.

The artifact for this control is the following SCP.

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "GRAUDITBUCKETRETENTIONPOLICY",
      "Effect": "Deny",
      "Action": [
        "s3:PutLifecycleConfiguration"
      ],
      "Resource": ["*"]
    }
  ]
}
```

Disallow Changes to Replication Configuration for Amazon S3 Buckets

Prevents changes to the way your Amazon S3 buckets have been set up to handle replication within Regions or across Regions. For example, if you set up your buckets with single-region replication, to restrict the location of your Amazon S3 data to a single AWS Region (thereby disabling any automatic, asynchronous copying of objects across buckets to other AWS Regions), then this control prevents that replication setting from being changed. This is a preventive control with elective guidance. By default, this control is not enabled.

The artifact for this control is the following SCP.

```json
{
  "Version": "2012-10-17",
  "Statement": [
  ]
}
```
Disallow Delete Actions on Amazon S3 Buckets Without MFA

Protects your Amazon S3 buckets by requiring MFA for delete actions. MFA requires an extra authentication code after the user name and password are successful. This is a preventive control with elective guidance. By default, this control is not enabled.

The artifact for this control is the following SCP.

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "GRRESTRICTS3DELETEWITHOUTMFA",
            "Effect": "Deny",
            "Action": [
                "s3:DeleteObject",
                "s3:DeleteBucket"
            ],
            "Resource": [
                "*"
            ],
            "Condition": {
                "BoolIfExists": {
                    "aws:MultiFactorAuthPresent": [
                        "false"
                    ]
                }
            }
        }
    ]
}
```
Detect Whether MFA is Enabled for AWS IAM Users

This control detects whether MFA is enabled for AWS IAM users. You can protect your account by requiring MFA for all AWS users in the account. MFA requires an additional authentication code after the user name and password are successful. This control does not change the status of the account. This is a detective control with elective guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```json
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check whether the IAM users have MFA enabled
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
  MaximumExecutionFrequency:
    Type: String
    Default: 1hour
    Description: The frequency that you want AWS Config to run evaluations for the rule.
    AllowedValues:
      - 1hour
      - 3hours
      - 6hours
      - 12hours
      - 24hours
Mappings:
  Settings:
    FrequencyMap:
      1hour   : One_Hour
      3hours  : Three_Hours
      6hours  : Six_Hours
      12hours : Twelve_Hours
      24hours : TwentyFour_Hours
Resources:
  CheckForIAMUserMFA:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Checks whether the AWS Identity and Access Management users have multi-factor authentication (MFA) enabled. The rule is COMPLIANT if MFA is enabled.
```
Detect Whether MFA is Enabled for AWS IAM Users of the AWS Console

Protects your account by requiring MFA for all AWS IAM users in the console. MFA reduces vulnerability risks from weak authentication by requiring an additional authentication code after the user name and password are successful. This control detects whether MFA is enabled. This control does not change the status of the account. This is a detective control with elective guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check whether MFA is enabled for all AWS IAM users that use a console password.
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
  MaximumExecutionFrequency:
    Type: String
    Default: 1hour
    Description: The frequency that you want AWS Config to run evaluations for the rule.
    AllowedValues:
      - 1hour
      - 3hours
      - 6hours
      - 12hours
      - 24hours
Mappings:
  Settings:
    FrequencyMap:
      1hour   : One_Hour
      3hours  : Three_Hours
      6hours  : Six_Hours
```
Detect Whether Versioning for Amazon S3 Buckets is Enabled

Detects whether your Amazon S3 buckets are enabled for versioning. Versioning allows you to recover objects from accidental deletion or overwrite. This control does not change the status of the account. This is a detective control with elective guidance. By default, this control is not enabled.

The artifact for this control is the following AWS Config rule.

```json
AWSTemplateFormatVersion: 2010-09-09
Description: Configure AWS Config rules to check whether versioning is enabled for your S3 buckets.
Parameters:
  ConfigRuleName:
    Type: 'String'
    Description: 'Name for the Config rule'
Resources:
  CheckForS3VersioningEnabled:
    Type: AWS::Config::ConfigRule
    Properties:
      ConfigRuleName: !Sub ${ConfigRuleName}
      Description: Checks whether versioning is enabled for your S3 buckets.
      Source:
        Owner: AWS
```
Optional controls

SourceIdentifier: S3_BUCKET_VERSIONING_ENABLED
Scope:
  ComplianceResourceTypes:
    - AWS::S3::Bucket

Disallow management of resource types, modules, and hooks within the AWS CloudFormation registry

This elective control disallows management of the following extension types in the AWS CloudFormation registry: resource types, modules, and hooks. For more information about AWS CloudFormation extensions, see [Using the AWS CloudFormation registry](#).

**Note**
You must enable this control when you activate proactive controls in your environment.

- **Control objective**: Protect configurations
- **Implementation** Service control policy (SCP)
- **Control behavior**: Preventive
- **Control guidance**: Elective
- **Control owner**: AWS Control Tower
- **Control ID**: CT.CLOUDFORMATION.PR.1
- **Severity**: Critical
- **AWS Service**: AWS CloudFormation
- **Resource types**: AWS::CloudFormation::HookDefaultVersion, AWS::CloudFormation::HookTypeConfig, AWS::CloudFormation::HookVersion, AWS::CloudFormation::ModuleDefaultVersion, AWS::CloudFormation::ModuleVersion, AWS::CloudFormation::ResourceDefaultVersion, AWS::CloudFormation::ResourceVersion

The following example shows the SCP artifact for this control.

```json
{
  "Version": "2012-10-17",
```
"Statement": [
    {
        "Sid": "GRDISALLOWMODIFICATIONCFNREGISTRY",
        "Effect": "Deny",
        "Action": [
            "cloudformation:RegisterType",
            "cloudformation:DeregisterType",
            "cloudformation:SetTypeConfiguration",
            "cloudformation:SetTypeDefaultVersion",
            "cloudformation:PublishType"
        ],
        "Resource": [
            "*
        ],
        "Condition": {
            "ArnNotLike": {
                "aws:PrincipalARN": "arn:aws:iam::*:role/AWSControlTowerExecution"
            }
        }
    }
]
Integrated services

AWS Control Tower is a service that’s built on top of other AWS services, to assist you in setting up a well-architected environment. This chapter provides a brief overview of these services, including configuration information about the underlying services and how they work in AWS Control Tower.

For more information about how to measure a well-architected environment, learn about the AWS Well-Architected Tool. Also see the Management and Governance Cloud Environment Guide.

Topics

- Deploy Environments with AWS CloudFormation
- Monitor Events with CloudTrail
- Monitor Resources and Services with CloudWatch
- Govern Resource Configurations with AWS Config
- Manage Permissions for Entities with IAM
- AWS Key Management Service
- Run Serverless Compute Functions with Lambda
- Manage Accounts Through AWS Organizations
- Store Objects with Amazon S3
- Monitor your environment with Security Hub
- Provision Accounts Through AWS Service Catalog
- Track Alerts Through Amazon Simple Notification Service
- Build Distributed Applications with AWS Step Functions

Deploy Environments with AWS CloudFormation

AWS CloudFormation enables you to create and provision AWS infrastructure deployments predictably and repeatedly. It helps you leverage AWS products to build highly reliable, highly scalable, cost-effective applications in the cloud without worrying about creating and configuring the underlying AWS infrastructure. AWS CloudFormation enables you to use a template file to create and delete a collection of resources together as a single unit (a stack). For more information, see AWS CloudFormation User Guide.
AWS Control Tower uses AWS CloudFormation stacksets to apply controls on accounts. For more information about how AWS CloudFormation and AWS Control Tower work together, see Creating AWS Control Tower resources with AWS CloudFormation.

Monitor Events with CloudTrail

AWS Control Tower configures AWS CloudTrail to enable centralized logging and auditing. With CloudTrail, the management account can review administrative actions and lifecycle events for member accounts.

CloudTrail helps you monitor your AWS environment in the cloud by keeping a history of AWS API calls for your accounts. For example, you can identify the users and accounts that called AWS APIs for services that support CloudTrail, the source IP address from which the calls were made, and the time when the calls occurred. You can integrate CloudTrail into applications using the API, automate trail creation for your organization, check the status of your trails, and control how administrators turn CloudTrail logging on and off. For more information, see AWS CloudTrail User Guide.

Monitor Resources and Services with CloudWatch

Amazon CloudWatch provides a reliable, scalable, and flexible monitoring solution that you can start using within minutes. You no longer need to set up, manage, and scale your own monitoring systems and infrastructure. For more information, see Amazon CloudWatch User Guide.

For more information about how Amazon CloudWatch works with AWS Control Tower, see Monitoring.

Govern Resource Configurations with AWS Config

AWS Config provides a detailed view of the resources associated with your AWS account, including how they are configured, how they are related to one another, and how the configurations and their relationships have changed over time. For more information, see AWS Config Developer Guide.

AWS Config resources provisioned by AWS Control Tower are tagged automatically with aws-control-tower and a value of managed-by-control-tower.

For more information about how AWS Config monitors and records resources in AWS Control Tower, and how it bills you for them, see Monitor resource changes with AWS Config.
AWS Control Tower uses AWS Config Rules to implement detective controls. For more information, see [About controls in AWS Control Tower](#).

## Manage Permissions for Entities with IAM

AWS Identity and Access Management (IAM) is an AWS service for controlling access to other AWS services. With IAM, you can centrally manage users, security credentials—such as access keys, and permissions—that designate the AWS resources to which your users and applications are granted access.

When you set up your landing zone, a number of groups can be created for AWS IAM Identity Center automatically, if you select IAM as your identity provider. These groups have permission sets that are pre-defined permissions policies from IAM. Your end-users also can use IAM to define the scope of permissions for IAM users and other entities within member accounts.

AWS Identity and Access Management (IAM) simplifies how you manage access to AWS accounts and business applications. You can control IAM Identity Center access and user permissions across all your AWS accounts in AWS Control Tower.

For more information, see [AWS IAM Identity Center User Guide](#).

If you are based in an AWS Region that does not support IAM, you can bring another identity provider, to set up and maintain your own users and groups manually.

## AWS Key Management Service

AWS Key Management Service (AWS KMS) allows you to create and control keys that protect your data. AWS Control Tower optionally allows you to encrypt your data with AWS KMS encryption keys. For information about AWS KMS, see the [AWS KMS Developer Guide](#).

For information about how to set up AWS KMS keys with AWS Control Tower, see [Step 2. Configure and launch your landing zone](#).

## Run Serverless Compute Functions with Lambda

With AWS Lambda, you can run code without provisioning or managing servers. You can run code for many types of application or backend service—with no need for additional administration overhead. When you upload your code, Lambda can run and scale the code with high availability.
You can set up your code to trigger from other AWS services automatically, or you can call it directly from any web or mobile app.

For example, certain roles in the AWS Control Tower audit account can be assumed programmatically, so that you can review other accounts using Lambda. Also, you can use AWS Control Tower lifecycle events to trigger Lambda functions.

**Manage Accounts Through AWS Organizations**

AWS Organizations is an account management service that lets you consolidate multiple AWS accounts into an organization that you create and centrally manage. With Organizations, you can create member accounts and invite existing accounts to join your organization. You can organize those accounts into groups and attach policy-based controls. For more information, see [AWS Organizations User Guide](#).

In AWS Control Tower, Organizations helps centrally manage billing; control access, compliance, and security; and share resources across your member AWS accounts. Accounts are grouped into logical groups, called organizational units (OUs). For more information on Organizations, see [AWS Organizations User Guide](#).

AWS Control Tower uses the following OUs:

- **Root** – The parent container for all accounts and all other OUs in your landing zone.
- **Security** – This OU contains the log archive account, the audit account, and the resources they own.
- **Sandbox** – This OU is created when you set up your landing zone. It and other child OUs in your landing zone contain your member accounts. These are the accounts that your end users access to perform work on AWS resources.

**Note**

You can add additional OUs in your landing zone through the AWS Control Tower console on the **Organizational units** page.
Considerations

OUs created through AWS Control Tower can have controls applied to them. OUs created outside of AWS Control Tower cannot, by default. You can, however, register such OUs. Once you have registered an OU, you can apply controls to it and its accounts. For information on registering an OU, see Register an existing organizational unit with AWS Control Tower.

Store Objects with Amazon S3

Amazon Simple Storage Service (Amazon S3) is storage for the internet. You can use Amazon S3 to store and retrieve any amount of data at any time, from anywhere on the web. You can accomplish these tasks using the simple and intuitive web interface of the AWS Management Console. For more information, see Amazon Simple Storage Service User Guide.

When you set up your landing zone, an Amazon S3 bucket is created in your log archive account to contain all logs across all accounts in your landing zone.

Monitor your environment with Security Hub


Provision Accounts Through AWS Service Catalog

AWS Service Catalog enables IT administrators to create, manage, and distribute portfolios of approved products to end users, who then have access the products they need in a personalized portal. Typical products include servers, databases, websites, or applications that are deployed using AWS resources.

You can control the users that have access to specific products, which allows you to enforce compliance with organizational business standards, manage product lifecycles, and help users find and launch products with confidence. For more information, see Service Catalog Administrator Guide.

In AWS Control Tower, your central cloud administrators and your end users can provision accounts in your landing zone using Account Factory, a product in Service Catalog. For more information, see Provision and manage accounts with Account Factory.
AWS Control Tower also can make use of the Service Catalog APIs to further automate account provisioning and updating. For details, see the AWS Service Catalog Developer Guide.

**Transition to the AWS Service Catalog External product type**

AWS Service Catalog changed support for *Terraform Open Source* products and provisioned products to a new product type, called *External*. To learn more about this transition, review Updating existing Terraform Open Source products and provisioned products to the External product type in the AWS Service Catalog administrator guide.

This change effects existing accounts that you created or enrolled with AWS Control Tower account factory customization. To transition these accounts to the *External* product type, you need to make changes in both AWS Service Catalog and AWS Control Tower.

**To transition to the External product type**

1. Upgrade your existing Terraform Reference Engine for AWS Service Catalog to include support for both *External* and *Terraform Open Source* product types. For instructions about updating your Terraform Reference Engine, review the AWS Service Catalog GitHub Repository.

2. In AWS Service Catalog, duplicate any existing *Terraform Open Source* products (blueprints), with the duplicates using the new *External* product type. **Do not terminate the existing Terraform Open Source blueprints.**

3. In AWS Control Tower, update each account using a *Terraform Open Source* blueprint to use the new *External* blueprint.
   a. To update a blueprint, you must first remove the *Terraform Open Source* blueprint completely. For more details, review Remove a blueprint from an account.
   b. Add the new *External* blueprint to the same account. For more details, review Add a blueprint to an AWS Control Tower account.

4. After all accounts using *Terraform Open Source* blueprints are updated to *External* blueprints, return to AWS Service Catalog and terminate any products that use *Terraform Open Source* as the product type.

5. Going forward, all accounts created or enrolled using AWS Control Tower account factory customization must reference blueprints using the *AWS CloudFormation* or *External* product type.
For blueprints created using the *External* product type, AWS Control Tower only supports account customizations that use Terraform templates and the Terraform reference engine. To learn more, review [Set up for customization](#).

After December 14, 2023, AWS Control Tower will not support *Terraform Open Source* as a product type when creating new accounts. To learn more about these changes, review [Updating existing Terraform Open Source products and provisioned products to the *External* product type](#) in the *AWS Service Catalog administrator guide*. AWS Service Catalog will support customers through this product type transition, as needed. Contact your account representative to request assistance.

### Track Alerts Through Amazon Simple Notification Service

Amazon Simple Notification Service (Amazon SNS) is a web service that enables applications, end-users, and devices to send and receive notifications instantly from the cloud. For more information, see [Amazon Simple Notification Service Developer Guide](#).

AWS Control Tower uses Amazon SNS to send programmatic alerts to the email addresses of your management account and your audit account. These alerts help you prevent drift within your landing zone. For more information, see [Detect and resolve drift in AWS Control Tower](#).

We also use Amazon Simple Notification Service to send compliance notifications from AWS Config.

---

**Tip**

One of the best ways to receive AWS Control Tower control compliance notifications (in your audit account) is to subscribe to `AggregateConfigurationNotifications`. It is a service that helps you inspect compliance. It gives you real data about AWS Config rules going out of compliance. AWS Config automatically maintains the list of accounts in your OU.

You must subscribe manually, using email or any type of subscription that SNS allows. The statement `arn:aws:sns:homeregion:account:aws-controltower-AggregateSecurityNotifications` leads to your audit account.
Build Distributed Applications with AWS Step Functions

AWS Step Functions makes it easy to coordinate the components of distributed applications as a series of steps in a visual workflow. You can quickly build and run state machines to execute the steps of your application in a reliable and scalable fashion. For more information, see AWS Step Functions Developer Guide.
Identity and access management in AWS Control Tower

To perform any operation in your landing zone, such as provisioning accounts in Account Factory or creating new organizational units (OUs) in the AWS Control Tower console, either AWS Identity and Access Management (IAM) or AWS IAM Identity Center require you to authenticate that you're an approved AWS user. For example, if you're using the AWS Control Tower console, you authenticate your identity by providing your AWS credentials, as provided by your administrator.

After you authenticate your identity, IAM controls your access to AWS with a defined set of permissions on a specific set of operations and resources. If you are an account administrator, you can use IAM to control the access of other IAM users to the resources that are associated with your account.

Topics

- Authentication
- Access control
- Working with AWS IAM Identity Center and AWS Control Tower
- Overview of managing access permissions to your AWS Control Tower resources
- Prevent cross-service impersonation
- Using identity-based policies (IAM policies) for AWS Control Tower

Authentication

You have access to AWS as any of the following types of identities:

- **AWS account root user** – When you first create an AWS account, you begin with an identity that has complete access to all AWS services and resources in the account. This identity is called the AWS account root user. You have access to this identity when you sign in with the email address and password that you used to create the account. We strongly recommend that you do not use the root user for your everyday tasks, even the administrative ones. Instead, adhere to the best practice of using the root user only to create your first IAM Identity Center user (recommended) or IAM user (not a best practice in most use cases). Then securely lock away the root user credentials and use them to perform only a few account and service management tasks. For more information, see When to sign in as a root user.
• **IAM user** – An **IAM user** is an identity within your AWS account that has specific, customized permissions. You can use the IAM user credentials to sign in to secure AWS webpages such as the AWS Management Console, AWS Discussion Forums, or the AWS Support Center. AWS best practices recommend that you create an IAM Identity Center user instead of an IAM user, because there is more security risk when you create an IAM user that has long-term credentials.

If you must create an IAM user for a certain purpose, in addition to sign-in credentials, you can generate access keys for each IAM user. You can use these keys when you call AWS services programmatically, either through one of the several SDKs or by using the AWS Command Line Interface (CLI). The SDK and CLI tools use the access keys to cryptographically sign your request. If you don’t use AWS tools, you must sign the request yourself. AWS Control Tower supports Signature Version 4, a protocol for authenticating inbound API requests. For more information about authenticating requests, see [Signature Version 4 Signing Process](#) in the AWS General Reference.

• **IAM role** – An **IAM role** is an IAM identity that you can create in your account that has specific permissions. An IAM role is similar to an IAM user in that it is an AWS identity, and it has permissions policies that determine what the identity can and cannot do in AWS. However, instead of being uniquely associated with one person, a role is intended to be assumable by anyone who needs it. Also, a role does not have standard long-term credentials such as a password or access keys associated with it. Instead, when you assume a role, it provides you with temporary security credentials for your role session. IAM roles with temporary credentials are useful in the following situations:

• **Federated user access** – Instead of creating an IAM user, you can use existing identities from AWS Directory Service, your enterprise user directory, or a web identity provider. These are known as **federated users**. AWS assigns a role to a federated user when access is requested through an identity provider. For more information about federated users, see [Federated Users and Roles](#) in the IAM User Guide.

• **AWS service access** – A service role is an IAM role that a service assumes to perform actions in your account on your behalf. When you set up some AWS service environments, you must define a role for the service to assume. This service role must include all the permissions that are required for the service to access the AWS resources that it needs. Service roles vary from service to service, but many allow you to choose your permissions as long as you meet the documented requirements for that service. Service roles provide access only within your account and cannot be used to grant access to services in other accounts. You can create, modify, and delete a service role from within IAM. For example, you can create a role that allows Amazon Redshift to access an Amazon S3 bucket on your behalf and then load data
from that bucket into an Amazon Redshift cluster. For more information, see Creating a Role to Delegate Permissions to an AWS Service in the IAM User Guide.

- **Applications running on Amazon EC2** – You can use an IAM role to manage temporary credentials for applications that are running on an Amazon EC2 instance and making AWS CLI or AWS API requests. This is preferable to storing access keys within the Amazon EC2 instance. To assign an AWS role to an Amazon EC2 instance and make it available to all of its applications, you create an instance profile that is attached to the instance. An instance profile contains the role and enables programs that are running on the Amazon EC2 instance to get temporary credentials. For more information, see Using an IAM Role to Grant Permissions to Applications Running on Amazon EC2 Instances in the IAM User Guide.

- **IAM Identity Center user** Authentication to the IAM Identity Center user portal is controlled by the directory that you have connected to IAM Identity Center. However, authorization to the AWS accounts that are available to end users from within the user portal is determined by two factors:
  
  - Who has been assigned access to those AWS accounts in the AWS IAM Identity Center console. For more information, see Single Sign-On Access in the AWS IAM Identity Center User Guide.
  
  - What level of permissions have been granted to the end-users in the AWS IAM Identity Center console to allow them the appropriate access to those AWS accounts. For more information, see Permission Sets in the AWS IAM Identity Center User Guide.

## Access control

To create, update, delete, or list AWS Control Tower resources, or other AWS resources in your landing zone you need permissions to perform the operation, and you need permissions to access the corresponding resources. In addition, to perform the operation programmatically, you need valid access keys.

The following sections describe how to manage permissions for AWS Control Tower:

### Topics

- Overview of managing access permissions to your AWS Control Tower resources
- Using identity-based policies (IAM policies) for AWS Control Tower
Working with AWS IAM Identity Center and AWS Control Tower

In AWS Control Tower, IAM Identity Center allows central cloud administrators and end-users to manage access to multiple AWS accounts and business applications. By default, AWS Control Tower uses this service to set up and manage access to the accounts created through Account Factory, unless you have selected the option to self-manage your identity and access control.

For more information about selecting an identity provider, see IAM Identity Center guidance.

For a brief tutorial about how to set up your IAM Identity Center users and permissions in AWS Control Tower, you can view this video (6:23). For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.

Video Walkthrough of Setting Up AWS IAM Identity Center in AWS Control Tower.

About setting up AWS Control Tower with IAM Identity Center

When you initially set up AWS Control Tower, only the root user user and any IAM users with the correct permissions can add IAM Identity Center users. However, after end users have been added in the AWSAccountFactory group, they can create new IAM Identity Center users from the Account Factory wizard. For more information, see Provision and manage accounts with Account Factory.

If you choose the recommended default, AWS Control Tower sets up your landing zone with a preconfigured directory that helps you manage user identities and single sign-on, so that your users have federated access across accounts. When you set up your landing zone, this default directory is created to contain user groups and permission sets.

Note
You can delegate administration of AWS IAM Identity Center in your organization to an account other than the management account, by using the delegated administrator feature of IAM Identity Center. If you choose to use this feature, be aware that Administrators with access to manage group membership also can manage groups assigned to the management account. For more information, see this blog post, entitled, Getting started with AWS SSO delegated administration.
User groups, roles, and permission sets

User groups manage specialized roles that are defined within your shared accounts. Roles establish sets of permissions that belong together. All members of a group inherit the permission sets, or roles, associated with the group. You can create new groups for the end users of your member accounts, so that you can custom-assign only the roles that are needed for the specific tasks a group performs.

The permission sets available cover a broad range of distinct user permission requirements, such as read-only access, AWS Control Tower administrative access, and Service Catalog access. These permission sets enable your end users to provision their own AWS accounts in your landing zone quickly, and in compliance with your enterprise's guidelines.

For tips on planning your allocations of users, groups, and permissions, refer to Recommendations for setting up groups, roles, and policies

For more information on how to use this service in the context of AWS Control Tower, see the following topics in the AWS IAM Identity Center User Guide.

- To add users, see Add Users.
- To add users to groups, see Add Users to Groups.
- To edit user properties, see Edit User Properties.
- To add a group, see Add Groups.

⚠️ Warning

AWS Control Tower sets up your IAM Identity Center directory in your home Region. If you set up your landing zone in another Region and then navigate to the IAM Identity Center console, you must change the Region to your home region. Do not delete your IAM Identity Center configuration in your home Region.

Things to know about IAM Identity Center accounts and AWS Control Tower

Here are some good things to know when working with IAM Identity Center user accounts in AWS Control Tower.
• If your AWS IAM Identity Center user account is disabled, you'll get an error message when trying to provision new accounts in Account Factory. You can re-enable your IAM Identity Center user in the IAM Identity Center console.

• If you specify a new IAM Identity Center user email address when you update the provisioned product associated with an account that was vended by Account Factory, AWS Control Tower creates a new IAM Identity Center user account. The previously created user account is not removed. If you prefer to remove the previous IAM Identity Center user email address from AWS IAM Identity Center, see Disabling a User.

• AWS IAM Identity Center has been integrated with Azure Active Directory, and you can connect your existing Azure Active Directory to AWS Control Tower.

• For more information about how the behavior of AWS Control Tower interacts with AWS IAM Identity Center and different identity sources, refer to the Considerations for Changing Your Identity Source in the AWS IAM Identity Center documentation.

IAM Identity Center Groups for AWS Control Tower

AWS Control Tower offers preconfigured groups to organize users that perform specific tasks in your accounts. You can add users and assign them to these groups directly in IAM Identity Center. Doing so matches permission sets to users in groups within your accounts. The following groups are created when you set up your landing zone.

AWSAccountFactory

<table>
<thead>
<tr>
<th>Account</th>
<th>Permission sets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management account</td>
<td>AWSServiceCatalogEndUserAccess</td>
<td>This group is only used in this account to provision new accounts using Account Factory.</td>
</tr>
</tbody>
</table>

AWSServiceCatalogAdmins

<table>
<thead>
<tr>
<th>Account</th>
<th>Permission sets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management account</td>
<td>AWSServiceCatalogAdminFullAccess</td>
<td>This group is only used in this account to make administrative changes to Account</td>
</tr>
</tbody>
</table>
### IAM Identity Center Groups for AWS Control Tower

<table>
<thead>
<tr>
<th>Account</th>
<th>Permission sets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factory.</strong> Users in this group can't provision new accounts unless they're also in the <strong>AWSAccountFactory</strong> group.**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AWSControlTowerAdmins**

<table>
<thead>
<tr>
<th>Account</th>
<th>Permission sets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management account</td>
<td>AWSAdministratorAccess</td>
<td>Users of this group in this account are the only ones that have access to the AWS Control Tower console.</td>
</tr>
<tr>
<td>Log archive account</td>
<td>AWSAdministratorAccess</td>
<td>Users have administrator access in this account.</td>
</tr>
<tr>
<td>Audit account</td>
<td>AWSAdministratorAccess</td>
<td>Users have administrator access in this account.</td>
</tr>
<tr>
<td>Member accounts</td>
<td>AWSOrganizationsFullAccess</td>
<td>Users have full access to Organizations in this account.</td>
</tr>
</tbody>
</table>

**AWSSecurityAuditPowerUsers**

<table>
<thead>
<tr>
<th>Account</th>
<th>Permission sets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management account</td>
<td>AWSPowerUserAccess</td>
<td>Users can perform application development tasks and can create and configure resources and services that support AWS aware application development.</td>
</tr>
<tr>
<td>Log archive account</td>
<td>AWSPowerUserAccess</td>
<td>Users can perform application development tasks and</td>
</tr>
<tr>
<td>Account</td>
<td>Permission sets</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>can create and configure resources and services that support AWS aware applicati on development.</td>
</tr>
<tr>
<td>Audit account</td>
<td>AWSPowerUserAccess</td>
<td>Users can perform application development tasks and can create and configure resources and services that support AWS aware application development.</td>
</tr>
<tr>
<td>Member accounts</td>
<td>AWSPowerUserAccess</td>
<td>Users can perform application development tasks and can create and configure resources and services that support AWS aware application development.</td>
</tr>
</tbody>
</table>

**AWSSecurityAuditors**

<table>
<thead>
<tr>
<th>Account</th>
<th>Permission sets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management account</td>
<td>AWSReadOnlyAccess</td>
<td>Users have read-only access to all AWS services and resources in this account.</td>
</tr>
<tr>
<td>Log archive account</td>
<td>AWSReadOnlyAccess</td>
<td>Users have read-only access to all AWS services and resources in this account.</td>
</tr>
<tr>
<td>Audit account</td>
<td>AWSReadOnlyAccess</td>
<td>Users have read-only access to all AWS services and resources in this account.</td>
</tr>
</tbody>
</table>
### Account

<table>
<thead>
<tr>
<th>Permission sets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWSReadOnlyAccess</td>
<td>Users have read-only access to all AWS services and resources in this account.</td>
</tr>
<tr>
<td>AWSAdministratorAccess</td>
<td>Users have administrator access in this account.</td>
</tr>
</tbody>
</table>

### Overview of managing access permissions to your AWS Control Tower resources

Every AWS resource is owned by an AWS account, and permissions to create or gain access to a resource are governed by permissions policies. An account administrator can attach permissions policies to IAM identities (that is, users, groups, and roles). Some services (such as AWS Lambda) also support attaching permissions policies to resources.
An account administrator (or administrator) is a user with administrator privileges. For more information, see IAM Best Practices in the IAM User Guide.

When you are responsible for granting permissions to a user or role, you must know and track the users and roles that require permissions, the resources for which each user and role requires permissions, and the specific actions that must be allowed for operating those resources.

### Topics

- AWS Control Tower resources and operations
- About resource ownership
- Manage access to resources
- Specify policy elements: Actions, Effects, and Principals
- Specifying conditions in a policy

### AWS Control Tower resources and operations

In AWS Control Tower, the primary resource is a landing zone. AWS Control Tower also supports an additional resource type, controls, sometimes referred to as guardrails. However, for AWS Control Tower, you can manage controls only in the context of an existing landing zone. Controls can be referred to as a subresource.

Resources and subresources in AWS have unique Amazon Resource Names (ARNs) associated with them, as shown in the following example.

AWS Control Tower provides a set of API operations to work with AWS Control Tower resources. For a list of available operations, see AWS Control Tower the AWS Control Tower API Reference.

For more information about the AWS CloudFormation resources in AWS Control Tower, see the AWS CloudFormation User Guide.

### About resource ownership

The AWS account owns the resources that are created in the account, regardless of who created the resources. Specifically, the resource owner is the AWS account of the principal entity (that is, the
AWS account root user, an IAM Identity Center user, an IAM user, or an IAM role) that authenticates the resource creation request. The following examples illustrate how this works:

- If you use the AWS account root user credentials of your AWS account to set up a landing zone, your AWS account is the owner of the resource.
- If you create an IAM user in your AWS account and grant permissions to set up a landing zone to that user, the user can set up a landing zone as long as their account meets the prerequisites. However, your AWS account, to which the user belongs, owns the landing zone resource.
- If you create an IAM role in your AWS account with permissions to set up a landing zone, anyone who can assume the role can set up a landing zone. Your AWS account, to which the role belongs, owns the landing zone resource.

## Manage access to resources

A *permissions policy* describes who has access to what. The following section explains the available options for creating permissions policies.

### Note

This section discusses using IAM in the context of AWS Control Tower. It doesn't provide detailed information about the IAM service. For complete IAM documentation, see [What Is IAM?](#) in the *IAM User Guide*. For information about IAM policy syntax and descriptions, see [AWS IAM Policy Reference](#) in the *IAM User Guide*.

Policies attached to an IAM identity are referred to as *identity-based* policies (IAM policies). Policies attached to a resource are referred to as *resource-based* policies.

### Note

AWS Control Tower supports only identity-based policies (IAM policies).

## Topics

- [About identity-based policies (IAM policies)](#)
- [Create roles and assign permissions](#)
- [Resource-based policies](#)
About identity-based policies (IAM policies)

You can attach policies to IAM identities. For example, you can do the following:

• **Attach a permissions policy to a user or a group in your account** – To grant a user permissions to create an AWS Control Tower resource, such as setting up a landing zone, you can attach a permissions policy to a user or group that the user belongs to.

• **Attach a permissions policy to a role (grant cross-account permissions)** – You can attach an identity-based permissions policy to an IAM role to grant cross-account permissions. For example, an administrator for one AWS account (*Account A*) can create a role that grants cross-account permissions to another AWS account (*Account B*), or the administrator can create a role that grants permissions to another AWS service.

  1. The *Account A* administrator creates an IAM role and attaches a permissions policy to the role that grants permissions to manage resources in *Account A*.
  2. The *Account A* administrator attaches a trust policy to the role. The policy identifies *Account B* as the principal who can assume the role.
  3. As principal, the *Account B* administrator can give any user in *Account B* permission to assume the role. By assuming the role, users in *Account B* can create or gain access to resources in *Account A*.
  4. To grant an AWS service the ability (permissions) to assume the role, the principal that you specify in the trust policy can be an AWS service.

Create roles and assign permissions

Roles and permissions give you access to resources, in AWS Control Tower and in other AWS services, including programmatic access to resources.

To provide access, add permissions to your users, groups, or roles:

• Users and groups in AWS IAM Identity Center:

  Create a permission set. Follow the instructions in [Create a permission set](https://docs.aws.amazon.com/IdentityCenter/latest.GetUserGuide.html) in the *AWS IAM Identity Center User Guide*.

• Users managed in IAM through an identity provider:

  Create a role for identity federation. Follow the instructions in [Creating a role for a third-party identity provider (federation)](https://docs.aws.amazon.com/IAM/latest/UserGuide/id_s引起了的) in the *IAM User Guide*. 

Manage access to resources
IAM users:

- Create a role that your user can assume. Follow the instructions in Creating a role for an IAM user in the IAM User Guide.

- (Not recommended) Attach a policy directly to a user or add a user to a user group. Follow the instructions in Adding permissions to a user (console) in the IAM User Guide.

For more information about using IAM to delegate permissions, see Access Management in the IAM User Guide.

**Note**
When setting up an AWS Control Tower landing zone, you’ll need a user or role with the AdministratorAccess managed policy. (arn:aws:iam::aws:policy/AdministratorAccess)

To create a role for an AWS service (IAM console)

1. Sign in to the AWS Management Console and open the IAM console at https://console.aws.amazon.com/iam/.
2. In the navigation pane of the IAM console, choose Roles, and then choose Create role.
3. Choose the AWS service role type.
4. Choose the use case for your service. Use cases are defined by the service to include the trust policy that the service requires.
5. Choose Next.
6. If possible, select the policy to use for the permissions policy. Otherwise, choose Create policy to open a new browser tab and create a new policy from scratch. For more information, see Creating IAM policies in the IAM User Guide.
7. After you create the policy, close that tab and return to your original tab. Select the check box next to the permissions policies that you want the service to have.

Depending on the use case that you selected, the service might let you do any of the following:

- Nothing, because the service defines the permissions for the role.
- Choose from a limited set of permissions.
- Choose from any permissions.
- Select no policies at this time. However, you can create the policies later, and then attach them to the role.

8. (Optional) Set a permissions boundary. This is an advanced feature that is available for service roles, but not for service-linked roles.

Expand the Permissions boundary section and choose Use a permissions boundary to control the maximum role permissions. IAM includes a list of the AWS managed and customer managed policies in your account. Select the policy to use for the permissions boundary or choose Create policy to open a new browser tab and create a new policy from scratch. For more information, see Creating IAM policies in the IAM User Guide. After you create the policy, close that tab and return to your original tab to select the policy to use for the permissions boundary.

9. Choose Next.

10. For Role name, the degree of role name customization is defined by the service. If the service defines the role's name, you can't edit this option. In other cases, the service might define a prefix for the role and you can enter an optional suffix. For some services, you can specify the entire name of your role.

    If possible, enter a role name or role name suffix to help you identify the purpose of this role. Role names must be unique within your AWS account, so don't create roles named both PRODROLE and prodrole. When a role name is used in a policy or as part of an ARN, the role name is case sensitive. When a role name appears to customers in the console, such as during the sign-in process, the role name is case insensitive. Because various entities might reference the role, you can't edit the name of the role after it is created.

11. (Optional) For Description, enter a description for the new role.

12. Choose Edit in the Step 1: Select trusted entities or Step 2: Select permissions sections to edit the use cases and permissions for the role.

13. (Optional) Add metadata to the role by attaching tags as key-value pairs. For more information about using tags in IAM, see Tagging IAM resources in the IAM User Guide.

14. Review the role, and then choose Create role.

To use the JSON policy editor to create a policy

1. Sign in to the AWS Management Console and open the IAM console at https://console.aws.amazon.com/iam/.
2. In the navigation pane on the left, choose **Policies**.

   If this is your first time choosing **Policies**, the **Welcome to Managed Policies** page appears. Choose **Get Started**.

3. At the top of the page, choose **Create policy**.

4. In the **Policy editor** section, choose the **JSON** option.

5. Enter or paste a JSON policy document. For details about the IAM policy language, see [IAM JSON policy reference](#).

6. Resolve any security warnings, errors, or general warnings generated during **policy validation**, and then choose **Next**.

   **Note**

   You can switch between the **Visual** and **JSON** editor options anytime. However, if you make changes or choose **Next** in the **Visual** editor, IAM might restructure your policy to optimize it for the visual editor. For more information, see [Policy restructuring](#) in the **IAM User Guide**.

7. (Optional) When you create or edit a policy in the AWS Management Console, you can generate a JSON or YAML policy template that you can use in AWS CloudFormation templates.

   To do this, in the **Policy editor** choose **Actions**, and then choose **Generate CloudFormation template**. To learn more about AWS CloudFormation, see [AWS Identity and Access Management resource type reference](#) in the **AWS CloudFormation User Guide**.

8. When you are finished adding permissions to the policy, choose **Next**.

9. On the **Review and create** page, enter a **Policy name** and a **Description** (optional) for the policy that you are creating. Review **Permissions defined in this policy** to see the permissions that are granted by your policy.

10. (Optional) Add metadata to the policy by attaching tags as key-value pairs. For more information about using tags in IAM, see [Tagging IAM resources](#) in the **IAM User Guide**.

11. Choose **Create policy** to save your new policy.

**To use the visual editor to create a policy**

1. Sign in to the AWS Management Console and open the IAM console at [https://console.aws.amazon.com/iam/](https://console.aws.amazon.com/iam/).
2. In the navigation pane on the left, choose **Policies**.

   If this is your first time choosing **Policies**, the **Welcome to Managed Policies** page appears. Choose **Get Started**.

3. Choose **Create policy**.

4. In the **Policy editor** section, find the **Select a service** section, and then choose an AWS service. You can use the search box at the top to limit the results in the list of services. You can choose only one service within a visual editor permission block. To grant access to more than one service, add multiple permission blocks by choosing **Add more permissions**.

5. In **Actions allowed**, choose the actions to add to the policy. You can choose actions in the following ways:

   - Select the check box for all actions.
   - Choose **Add actions** to enter the name of a specific action. You can use a wildcard character (*) to specify multiple actions.
   - Select one of the **Access level** groups to choose all actions for the access level (for example, **Read**, **Write**, or **List**).
   - Expand each of the **Access level** groups to choose individual actions.

   By default, the policy that you are creating allows the actions that you choose. To deny the chosen actions instead, choose **Switch to deny permissions**. Because **IAM denies by default**, we recommend as a security best practice that you allow permissions to only those actions and resources that a user needs. Create a JSON statement to deny permissions only if you want to override a permission separately allowed by another statement or policy. We recommend that you limit the number of deny permissions to a minimum because they can increase the difficulty of troubleshooting permissions.

6. For **Resources**, if the service and actions that you selected in the previous steps do not support choosing **specific resources**, all resources are allowed and you cannot edit this section.

   If you chose one or more actions that support **resource-level permissions**, then the visual editor lists those resources. You can then expand **Resources** to specify resources for your policy.

   You can specify resources in the following ways:
• Choose **Add ARNs** to specify resources by their Amazon Resource Names (ARN). You can use the visual ARN editor or list ARNs manually. For more information about ARN syntax, see *Amazon Resource Names (ARNs)* in the *IAM User Guide*. For information about using ARNs in the Resource element of a policy, see *IAM JSON policy elements: Resource* in the *IAM User Guide*.

• Choose **Any in this account** next to a resource to grant permissions to any resources of that type.

• Choose **All** to choose all resources for the service.

7. (Optional) Choose **Request conditions - optional** to add conditions to the policy that you are creating. Conditions limit a JSON policy statement's effect. For example, you can specify that a user is allowed to perform the actions on the resources only when that user's request happens within a certain time range. You can also use commonly used conditions to limit whether a user must be authenticated by using a multi-factor authentication (MFA) device. Or you can require that the request originate from within a certain range of IP addresses. For lists of all of the context keys that you can use in a policy condition, see *Actions, resources, and condition keys for AWS services* in the *Service Authorization Reference*.

You can choose conditions in the following ways:

• Use check boxes to select commonly used conditions.

• Choose **Add another condition** to specify other conditions. Choose the condition's **Condition Key**, **Qualifier**, and **Operator**, and then enter a **Value**. To add more than one value, choose **Add**. You can consider the values as being connected by a logical OR operator. When you are finished, choose **Add condition**.

To add more than one condition, choose **Add another condition** again. Repeat as needed. Each condition applies only to this one visual editor permission block. All the conditions must be true for the permission block to be considered a match. In other words, consider the conditions to be connected by a logical AND operator.

For more information about the **Condition** element, see *IAM JSON policy elements: Condition* in the *IAM User Guide*.

8. To add more permission blocks, choose **Add more permissions**. For each block, repeat steps 2 through 5.
9. (Optional) When you create or edit a policy in the AWS Management Console, you can generate a JSON or YAML policy template that you can use in AWS CloudFormation templates.

To do this, in the Policy editor choose Actions, and then choose Generate CloudFormation template. To learn more about AWS CloudFormation, see AWS Identity and Access Management resource type reference in the AWS CloudFormation User Guide.

10. When you are finished adding permissions to the policy, choose Next.

11. On the Review and create page, enter a Policy name and a Description (optional) for the policy that you are creating. Review the Permissions defined in this policy to make sure that you have granted the intended permissions.

12. (Optional) Add metadata to the policy by attaching tags as key-value pairs. For more information about using tags in IAM, see Tagging IAM resources in the IAM User Guide.

13. Choose Create policy to save your new policy.

### To grant programmatic access

Users need programmatic access if they want to interact with AWS outside of the AWS Management Console. The way to grant programmatic access depends on the type of user that’s accessing AWS.

To grant users programmatic access, choose one of the following options.

<table>
<thead>
<tr>
<th>Which user needs programmatic access?</th>
<th>To</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workforce identity (Users managed in IAM Identity Center)</td>
<td>Use temporary credentials to sign programmatic requests to the AWS CLI, AWS SDKs, or AWS APIs.</td>
<td>Following the instructions for the interface that you want to use.</td>
</tr>
<tr>
<td>Which user needs programmatic access?</td>
<td>To</td>
<td>By</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>IAM</td>
<td>Use temporary credentials to sign programmatic requests to the AWS CLI, AWS SDKs, or AWS APIs.</td>
<td>Following the instructions in Using temporary credentials with AWS resources in the IAM User Guide.</td>
</tr>
</tbody>
</table>

- For the AWS CLI, see Configuring the AWS CLI to use AWS IAM Identity Center in the AWS Command Line Interface User Guide.
- For AWS SDKs, tools, and AWS APIs, see IAM Identity Center authentication in the AWS SDKs and Tools Reference Guide.
<table>
<thead>
<tr>
<th>Which user needs programmatic access?</th>
<th>To</th>
<th>By</th>
</tr>
</thead>
</table>
| IAM                                  | (Not recommended) Use long-term credentials to sign programmatic requests to the AWS CLI, AWS SDKs, or AWS APIs. | Following the instructions for the interface that you want to use.  
- For the AWS CLI, see Authenticating using IAM user credentials in the AWS Command Line Interface User Guide.  
- For AWS SDKs and tools, see Authenticate using long-term credentials in the AWS SDKs and Tools Reference Guide.  
- For AWS APIs, see Managing access keys for IAM users in the IAM User Guide. |

**Protect against attackers**

For more information about how to help protect against attackers when you grant permissions to other AWS service principals, see Optional conditions for your role trust relationships. By adding certain conditions to your policies, you can help prevent a specific type of attack, known as a confused deputy attack, which occurs if an entity coerces a more-privileged entity to perform an action, such as with cross-service impersonation. For general information about policy conditions, also see Specifying conditions in a policy.

For more information about using identity-based policies with AWS Control Tower, see Using identity-based policies (IAM policies) for AWS Control Tower. For more information about users, groups, roles, and permissions, see Identities (Users, Groups, and Roles) in the IAM User Guide.
Resource-based policies

Other services, such as Amazon S3, also support resource-based permissions policies. For example, you can attach a policy to an S3 bucket to manage access permissions to that bucket. AWS Control Tower does not support resource-based policies.

Specify policy elements: Actions, Effects, and Principals

You can set up and manage your landing zone through the AWS Control Tower console, or the landing zone APIs. To set up your landing zone, you must be an IAM user with administrative permissions as defined in a IAM policy.

The following elements are the most basic ones you can identify in a policy:

- **Resource** – In a policy, you use an Amazon Resource Name (ARN) to identify the resource to which the policy applies. For more information, see AWS Control Tower resources and operations.
- **Action** – You use action keywords to identify resource operations that you want to allow or deny. For information about types of actions available to be performed, see Actions defined by AWS Control Tower.
- **Effect** – You specify the effect when the user requests the specific action—this can be either allow or deny. If you don't explicitly grant access to (allow) a resource, access is implicitly denied. You can also explicitly deny access to a resource, which you might do to make sure that a user cannot access it, even if a different policy grants access.
- **Principal** – In identity-based policies (IAM policies), that user to which the policy is attached is the implicit principal. For resource-based policies, you specify the user, account, service, or other entity that you want to receive permissions (applies to resource-based policies only). AWS Control Tower doesn't support resource-based policies.

To learn more about IAM policy syntax and descriptions, see AWS IAM Policy Reference in the IAM User Guide.

Specifying conditions in a policy

When you grant permissions, you can use the IAM policy language to specify the conditions when a policy should take effect. For example, you might want a policy to be applied only after a specific date. For more information about specifying conditions in a policy language, see Condition in the IAM User Guide.
To express conditions, you can use predefined condition keys. There are no condition keys specific to AWS Control Tower. However, there are AWS-wide condition keys that you can use as appropriate. For a complete list of AWS-wide keys, see [Available Keys for Conditions](#) in the IAM User Guide.

### Prevent cross-service impersonation

In AWS, cross-service impersonation can result in the _confused deputy problem_. When one service calls another service, cross-service impersonation occurs if one service manipulates another service to use its permissions to act on a customer's resources in a way that's not otherwise permitted. To prevent this attack, AWS provides tools to help you protect your data, so that only those services with legitimate permission can gain access to resources in your account.

We recommend using the `aws:SourceArn` and `aws:SourceAccount` conditions in your policies, to limit the permissions that AWS Control Tower gives to another service for access to your resources.

- Use `aws:SourceArn` if you want only one resource to be associated with cross-service access.
- Use `aws:SourceAccount` if you want to allow any resource in that account to be associated with cross-service use.
- If the `aws:SourceArn` value does not contain the account ID, such as the ARN for an Amazon S3 bucket, you must use both conditions to limit permissions.
- If you use both conditions, and if the `aws:SourceArn` value contains the account ID, the `aws:SourceAccount` value and the account in the `aws:SourceArn` value must show the same account ID when used in the same policy statement.

For more information and examples, see [Optional conditions for your role trust relationships](#).

### Using identity-based policies (IAM policies) for AWS Control Tower

This topic provides examples of identity-based policies that demonstrate how an account administrator can attach permissions policies to IAM identities (that is, users, groups, and roles) and thereby grant permissions to perform operations on AWS Control Tower resources.
Important

We recommend that you first review the introductory topics that explain the basic concepts and options available for you to manage access to your AWS Control Tower resources. For more information, see Overview of managing access permissions to your AWS Control Tower resources.

Permissions Required to Use the AWS Control Tower Console

AWS Control Tower creates three roles automatically when you set up a landing zone. All three roles are required to allow console access. AWS Control Tower splits permissions into three roles as a best practice to restrict access to the minimal sets of actions and resources.

Three required roles

- **AWSControlTowerAdmin role**
- **AWSControlTowerStackSetRole**
- **AWSControlTowerCloudTrailRole**

We recommend that you restrict access to your role trust policies for these roles. For more information, see Optional conditions for your role trust relationships.

**AWSControlTowerAdmin role**

This role provides AWS Control Tower with access to infrastructure critical to maintaining the landing zone. The AWSControlTowerAdmin role requires an attached managed policy and a role trust policy for the IAM role. A role trust policy is a resource-based policy, specifying which principals can assume the role.

**Managed Policy for this role: AWSControlTowerServiceRolePolicy**

**AWSControlTowerServiceRolePolicy**

The AWSControlTowerServiceRolePolicy AWS-managed policy defines permissions to create and manage AWS Control Tower resources such as AWS CloudFormation stacksets and stack instances, AWS CloudTrail log files, a configuration aggregator for AWS Control Tower, as well as
AWS Organizations accounts and organizational units (OUs) that are governed by AWS Control Tower.

Updates to this managed policy are summarized in the table, Managed policies for AWS Control Tower.

For more information, see AWSControlTowerServiceRolePolicy in the AWS Managed Policy Reference Guide.

Managed Policy Name: AWSControlTowerServiceRolePolicy

The JSON artifact for AWSControlTowerServiceRolePolicy is the following:

```json
{
    "Version": "2012-10-17",
    "Statement": [
      {
        "Effect": "Allow",
        "Action": [
          "cloudformation:CreateStack",
          "cloudformation:CreateStackInstances",
          "cloudformation:CreateStackSet",
          "cloudformation:DeleteStack",
          "cloudformation:DeleteStackInstances",
          "cloudformation:DeleteStackSet",
          "cloudformation:DescribeStackInstance",
          "cloudformation:DescribeStacks",
          "cloudformation:DescribeStackSet",
          "cloudformation:DescribeStackSetOperation",
          "cloudformation:ListStackInstances",
          "cloudformation:UpdateStack",
          "cloudformation:UpdateStackInstances",
          "cloudformation:UpdateStackSet"
        ],
        "Resource": [
          "arn:aws:cloudformation:*:*:type/resource/AWS-IAM-Role"
        ]
      },
      {
        "Effect": "Allow",
        "Action": [
          "account:EnableRegion",
          "account:ListRegions",
          "account:GetRegionOptStatus"
        ]
      }
    ]
}
```
[{
  "Effect": "Allow",
  "Action": [
    "cloudformation:CreateStack",
    "cloudformation:CreateStackInstances",
    "cloudformation:CreateStackSet",
    "cloudformation:DeleteStack",
    "cloudformation:DeleteStackInstances",
    "cloudformation:DeleteStackSet",
    "cloudformation:DescribeStackInstance",
    "cloudformation:DescribeStacks",
    "cloudformation:DescribeStackSet",
    "cloudformation:DescribeStackSetOperation",
    "cloudformation:GetTemplate",
    "cloudformation:ListStackInstances",
    "cloudformation:UpdateStack",
    "cloudformation:UpdateStackInstances",
    "cloudformation:UpdateStackSet"
  ],
  "Resource": [
    "arn:aws:cloudformation::*::*:stack/AWSControlTower*/*",
    "arn:aws:cloudformation::*::*:stack/StackSet-AWSControlTower*/*",
    "arn:aws:cloudformation::*::*:stackset/AWSControlTower*:*",
    "arn:aws:cloudformation::*::*:stackset-target/AWSControlTower*/*"
  ]
},
{
  "Effect": "Allow",
  "Action": [
    "cloudtrail:CreateTrail",
    "cloudtrail:DeleteTrail",
    "cloudtrail:GetTrailStatus",
    "cloudtrail:StartLogging",
    "cloudtrail:StopLogging",
    "cloudtrail:UpdateTrail",
    "cloudtrail:PutEventSelectors",
    "logs:CreateLogStream",
    "logs:PutLogEvents",
    "logs:PutRetentionPolicy"
  ],
  "Resource": [}
"arn:aws:logs::*:*:log-group:aws-controltower/CloudTrailLogs:*",
"arn:aws:cloudtrail::*:*:trail/aws-controltower*"
],
},
{
"Effect": "Allow",
"Action": [
"s3:GetObject"
],
"Resource": [
"arn:aws:s3:::aws-controltower/*"
]
},
{
"Effect": "Allow",
"Action": [
"sts:AssumeRole"
],
"Resource": [
"arn:aws:iam::*:role/AWSControlTowerExecution",
"arn:aws:iam::*:role/AWSControlTowerBlueprintAccess"
]
},
{
"Effect": "Allow",
"Action": [
"cloudtrail:DescribeTrails",
"ec2:DescribeAvailabilityZones",
"iam:ListRoles",
"logs:CreateLogGroup",
"logs:DescribeLogGroups",
"organizations:CreateAccount",
"organizations:DescribeAccount",
"organizations:DescribeCreateAccountStatus",
"organizations:DescribeOrganization",
"organizations:DescribeOrganizationalUnit",
"organizations:DescribePolicy",
"organizations:ListAccounts",
"organizations:ListAccountsForParent",
"organizations:ListAWSServiceAccessForOrganization",
"organizations:ListChildren",
"organizations:ListOrganizationalUnitsForParent",
"organizations:ListParents",
"organizations:ListPoliciesForTarget",
"organizations:ListPoliciesForTarget"
]
"organizations:ListTargetsForPolicy",
"organizations:ListRoots",
"organizations:MoveAccount",
"servicecatalog:AssociatePrincipalWithPortfolio"
],
"Resource": "*"
},
{
  "Effect": "Allow",
  "Action": [
    "iam:GetRole",
    "iam:GetUser",
    "iam:ListAttachedRolePolicies",
    "iam:GetRolePolicy"
  ],
  "Resource": "*"
},
{
  "Effect": "Allow",
  "Action": [
    "iam:PassRole"
  ],
  "Resource": [
    "arn:aws:iam::*:role/service-role/AWSControlTowerStackSetRole",
    "arn:aws:iam::*:role/service-role/AWSControlTowerCloudTrailRole",
    "arn:aws:iam::*:role/service-role/AWSControlTowerConfigAggregatorRoleForOrganizations"
  ]
},
{
  "Effect": "Allow",
  "Action": [
    "config:DeleteConfigurationAggregator",
    "config:PutConfigurationAggregator",
    "config:TagResource"
  ],
  "Resource": "*",
  "Condition": {
    "StringEquals": {
      "aws:ResourceTag/aws-control-tower": "managed-by-control-tower"
    }
  }
},
{
}
"Effect": "Allow",
"Action": [
   "organizations:EnableAWSServiceAccess",
   "organizations:DisableAWSServiceAccess"
],
"Resource": "*",
"Condition": {
   "StringLike": {
      "organizations:ServicePrincipal": [
       "config.amazonaws.com",
       "cloudtrail.amazonaws.com"
      ]
   }
}
],
{
   "Effect": "Allow",
   "Action": "iam:CreateServiceLinkedRole",
   "Resource": "*",
   "Condition": {
      "StringEquals": {
         "iam:AWSServiceName": "cloudtrail.amazonaws.com"
      }
   }
}
]}

Role trust policy:

{
   "Version": "2012-10-17",
   "Statement": [
   {
      "Effect": "Allow",
      "Principal": {
         "Service": [
            "controltower.amazonaws.com"
         ]
      },
      "Action": "sts:AssumeRole"
   }
]
The inline policy is `AWSControlTowerAdminPolicy`:

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Action": "ec2:DescribeAvailabilityZones",
            "Resource": "*",
            "Effect": "Allow"
        }
    ]
}
```

**AWSControlTowerStackSetRole**

AWS CloudFormation assumes this role to deploy stack sets in accounts created by AWS Control Tower. Inline Policy:

```json
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Action": ["sts:AssumeRole"],
            "Resource": ["arn:aws:iam::*:role/AWSControlTowerExecution"],
            "Effect": "Allow"
        }
    ]
}
```

**AWSControlTowerCloudTrailRole**

AWS Control Tower enables CloudTrail as a best practice and provides this role to CloudTrail. CloudTrail assumes this role to create and publish CloudTrail logs. Inline Policy:

```json
{
}
```
AWSControlTowerBlueprintAccess role requirements

AWS Control Tower requires you to create the AWSControlTowerBlueprintAccess role in the designated blueprint hub account, within the same organization.

Role name

The role name must be AWSControlTowerBlueprintAccess.

Role trust policy

The role must be set up to trust the following principals:

- The principal that uses AWS Control Tower in the management account.
- The AWSControlTowerAdmin role in the management account.

The following example shows a least-privilege trust policy:

```json
{
   "Version": "2012-10-17",
   "Statement": [
      {
         "Action": "logs:CreateLogStream",
         "Effect": "Allow"
      },
      {
         "Action": "logs:PutLogEvents",
         "Effect": "Allow"
      }
   ]
}
```
Role permissions

You are required to attach the managed policy `AWSServiceCatalogAdminFullAccess` to the role.

**AWSServiceRoleForAWSControlTower**

This role provides AWS Control Tower with access to the Log Archive account, Audit account, and member accounts, for operations critical to maintaining the landing zone, such as notifying you of drifted resources.

The `AWSServiceRoleForAWSControlTower` role requires an attached managed policy and a role trust policy for the IAM role.

**Managed policy for this role:** `AWSControlTowerAccountServiceRolePolicy`

Role trust policy:

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": {
                "Service": "controltower.amazonaws.com"
            },
            "Action": "sts:AssumeRole"
        }
    ]
}
```

**AWSControlTowerAccountServiceRolePolicy**

This AWS-managed policy allows AWS Control Tower to call AWS services that provide automated account configuration and centralized governance on your behalf.
The policy contains the minimum permissions for AWS Control Tower to implement AWS Security Hub findings forwarding for resources managed by Security Hub controls that are part of the **Security Hub Service-managed Standard: AWS Control Tower**, and it prevents changes that restrict the ability to manage customer accounts. It is part of background AWS Security Hub drift detection process that is not directly initiated by a customer.

The policy gives permissions to create Amazon EventBridge rules, specifically for Security Hub controls, in each member account, and these rules must specify an exact EventPattern. Also, a rule can operate only on rules managed by our service principal.

**Service principal:** controltower.amazonaws.com

The JSON artifact for `AWSControlTowerAccountServiceRolePolicy` is the following:

```json
{
  "Version": "2012-10-17",
  "Statement": [
    {
      // For creating the managed rule
      "Sid": "AllowPutRuleOnSpecificSourcesAndDetailTypes",
      "Effect": "Allow",
      "Action": "events:PutRule",
      "Resource": "arn:aws:events:*:*:rule/*ControlTower*",
      "Condition": {
        "ForAnyValue:StringEquals": {
          "events:source": "aws.securityhub"
        },
        "Null": {
          "events:detail-type": "false"
        },
        "StringEquals": {
          "events:ManagedBy": "controltower.amazonaws.com",
          "events:detail-type": "Security Hub Findings - Imported"
        }
      }
    },
    {
      // Other operations to manage the managed rule
      "Sid": "AllowOtherOperationsOnRulesManagedByControlTower",
      "Effect": "Allow",
      "Action": [
        "events:DeleteRule",
        "events:EnableRule"
      ],
    }
  ]
}
```
"events:DisableRule",
"events:PutTargets",
"events:RemoveTargets"
],
"Resource": "arn:aws:events:*:*:rule/*ControlTower*",
"Condition": {
  "StringEquals": {
    "events:ManagedBy": "controltower.amazonaws.com"
  }
}
},
// More managed rule permissions
{
  "Sid": "AllowDescribeOperationsOnRulesManagedByControlTower",
  "Effect": "Allow",
  "Action": [
    "events:DescribeRule",
    "events:ListTargetsByRule"
  ],
  "Resource": "arn:aws:events:*:*:rule/*ControlTower*"
},
// Add permission to publish the security notifications to SNS
{
  "Sid": "AllowControlTowerToPublishSecurityNotifications",
  "Effect": "Allow",
  "Action": "sns:publish",
  "Condition": {
    "StringEquals": {
      "aws:PrincipalAccount": "${aws:ResourceAccount}"
    }
  }
},
// For drift verification
{
  "Sid": "AllowActionsForSecurityHubIntegration",
  "Effect": "Allow",
  "Action": [
    "securityhub:DescribeStandardsControls",
    "securityhub:GetEnabledStandards"
  ],
  "Resource": "arn:aws:securityhub:*:*:hub/default"
}
Updates to this managed policy are summarized in the table, Managed policies for AWS Control Tower.

## Managed policies for AWS Control Tower

AWS addresses many common use cases by providing standalone IAM policies that are created and administered by AWS. Managed policies grant necessary permissions for common use cases so you can avoid having to investigate what permissions are needed. For more information, see AWS Managed Policies in the IAM User Guide.

<table>
<thead>
<tr>
<th>Change</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWSControlTowerAccountServiceRolePolicy – A new policy</td>
<td>AWS Control Tower added a new service-linked role that allows AWS Control Tower to create and manage event rules, and based on those rules, to manage drift detection for controls that are related to Security Hub. This change is needed so that customers can view drifted resources in the console, when those resources are related to Security Hub controls that are part of the Security Hub Service-managed Standard: AWS Control Tower.</td>
<td>May 22, 2023</td>
</tr>
<tr>
<td>AWSControlTowerServiceRolePolicy – Update to an existing policy</td>
<td>AWS Control Tower added new permissions that allow AWS Control Tower to make calls to the EnableRegion, ListRegions, and</td>
<td>April 6, 2023</td>
</tr>
<tr>
<td>Change</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>GetRegionOptStatus</td>
<td>APIs implemented by the AWS Account Management service, to make the opt-in AWS Regions available for customer accounts in the landing zone (Management account, Log archive account, Audit account, OU member accounts). This change is needed so that customers can have the option to expand Region governance by AWS Control Tower into the opt-in Regions.</td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td><strong>AWSControlTowerServiceRolePolicy</strong> – Update to an existing policy</td>
<td>AWS Control Tower added new permissions that allow AWS Control Tower to assume the <strong>AWSControlTowerBlueprintAccess</strong> role in the blueprint (hub) account, which is a dedicated account in an organization, containing pre-defined blueprints stored in one or more Service Catalog Products. AWS Control Tower assumes the <strong>AWSControlTowerBlueprintAccess</strong> role to perform three tasks: create a Service Catalog Portfolio, add the requested blueprint Product, and share the Portfolio to a requested member account at account provisioning time. This change is needed so that customers can provision customized accounts through AWS Control Tower Account Factory.</td>
<td>October 28, 2022</td>
</tr>
<tr>
<td>Change</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>AWSControlTowerServiceRolePolicy – Update to an existing policy</td>
<td>AWS Control Tower added new permissions that allow customers to set up organization-level AWS CloudTrail trails, starting in landing zone version 3.0. The organization-based CloudTrail feature requires customers to have trusted access enabled for the CloudTrail service, and the IAM user or role must have permission to create an organization-level trail in the management account.</td>
<td>June 20, 2022</td>
</tr>
<tr>
<td>Change</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td><strong>AWSControlTowerServiceRolePolicy</strong> – Update to an existing policy</td>
<td>AWS Control Tower added new permissions that allow customers to use KMS key encryption. The KMS feature allows customers to provide their own KMS key to encrypt their CloudTrail logs. Customers also can change the KMS key during landing zone update or repair. When updating the KMS key, AWS CloudFormation needs permissions to call the AWS CloudTrail PutEventSelector API. The change to the policy is to allow the <strong>AWSControlTowerAdmin</strong> role to call the AWS CloudTrail PutEventSelector API.</td>
<td>July 28, 2021</td>
</tr>
<tr>
<td>AWS Control Tower started tracking changes</td>
<td>AWS Control Tower started tracking changes for its AWS managed policies.</td>
<td>May 27, 2021</td>
</tr>
</tbody>
</table>
Security in AWS Control Tower

Cloud security at AWS is the highest priority. As an AWS customer, you benefit from a data center and network architecture that is built to meet the requirements of the most security-sensitive organizations.

Security is a shared responsibility between AWS and you. The shared responsibility model describes this as security of the cloud and security in the cloud:

- **Security of the cloud** – AWS is responsible for protecting the infrastructure that runs AWS services in the AWS Cloud. AWS also provides you with services that you can use securely. The effectiveness of our security is regularly tested and verified by third-party auditors as part of the AWS compliance programs. To learn about the compliance programs that apply to AWS Control Tower, see AWS Services in Scope by Compliance Program.

- **Security in the cloud** – Your responsibility is determined by the AWS services that you use. You are also responsible for other factors including the sensitivity of your data, your organization's requirements, and applicable laws and regulations.

This documentation helps you understand how to apply the shared responsibility model when using AWS Control Tower. The following topics show you how to configure AWS Control Tower to meet your security and compliance objectives. You also learn how to use other AWS services that help you monitor and secure your AWS Control Tower resources.

Data Protection in AWS Control Tower

The AWS shared responsibility model applies to data protection in AWS Control Tower. As described in this model, AWS is responsible for protecting the global infrastructure that runs all of the AWS Cloud. You are responsible for maintaining control over your content that is hosted on this infrastructure. You are also responsible for the security configuration and management tasks for the AWS services that you use. For more information about data privacy, see the Data Privacy FAQ. For information about data protection in Europe, see the AWS Shared Responsibility Model and GDPR blog post on the AWS Security Blog.

For data protection purposes, we recommend that you protect AWS account credentials and set up individual users with AWS IAM Identity Center or AWS Identity and Access Management (IAM). That way, each user is given only the permissions necessary to fulfill their job duties. We also recommend that you secure your data in the following ways:
• Use multi-factor authentication (MFA) with each account.
• Use SSL/TLS to communicate with AWS resources. We require TLS 1.2 and recommend TLS 1.3.
• Set up API and user activity logging with AWS CloudTrail.
• Use AWS encryption solutions, along with all default security controls within AWS services.
• Use advanced managed security services such as Amazon Macie, which assists in discovering and securing sensitive data that is stored in Amazon S3.
• If you require FIPS 140-2 validated cryptographic modules when accessing AWS through a command line interface or an API, use a FIPS endpoint. For more information about the available FIPS endpoints, see Federal Information Processing Standard (FIPS) 140-2.

We strongly recommend that you never put confidential or sensitive information, such as your customers' email addresses, into tags or free-form text fields such as a Name field. This includes when you work with AWS Control Tower or other AWS services using the console, API, AWS CLI, or AWS SDKs. Any data that you enter into tags or free-form text fields used for names may be used for billing or diagnostic logs. If you provide a URL to an external server, we strongly recommend that you do not include credentials information in the URL to validate your request to that server.

Note
User activity logging with AWS CloudTrail is handled automatically in AWS Control Tower when you set up your landing zone.

For more information about data protection, see the AWS Shared Responsibility Model and GDPR blog post on the AWS Security Blog. AWS Control Tower provides the following options that you can use to help secure the content that exists in your landing zone:

Topics
• Encryption at Rest
• Encryption in Transit
• Restrict Access to Content
Encryption at Rest

AWS Control Tower uses Amazon S3 buckets and Amazon DynamoDB databases that are encrypted at rest by using Amazon S3-Managed Keys (SSE-S3) in support of your landing zone. This encryption is configured by default when you set up your landing zone. Optionally, you can configure your landing zone to encrypt resources with KMS encryption keys. You can also establish encryption at rest for the services you use in your landing zone for the services that support it. For more information, see the security chapter of that service's online documentation.

Encryption in Transit

AWS Control Tower uses Transport Layer Security (TLS) and client-side encryption for encryption in transit in support of your landing zone. In addition, accessing AWS Control Tower requires using the console, which can only be accessed through an HTTPS endpoint. This encryption is configured by default when you set up your landing zone.

Restrict Access to Content

As a best practice, you should restrict access to the appropriate subset of users. With AWS Control Tower, you can do this by ensuring that your central cloud administrators and end users have the right IAM permissions or, in the case of IAM Identity Center users, that they are in the correct groups.

- For more information about roles and policies for IAM entities, see IAM User Guide.
- For more information about the IAM Identity Center groups that are created when you set up your landing zone, see IAM Identity Center Groups for AWS Control Tower.

Compliance Validation for AWS Control Tower

AWS Control Tower is a well-architected service that can help your organization meet your compliance needs with controls and best practices. Additionally, third-party auditors assess the security and compliance of a number of the services you can use in your landing zone as a part of multiple AWS compliance programs. These include SOC, PCI, FedRAMP, HIPAA, and others.

For a list of AWS services in scope of specific compliance programs, see AWS Services in Scope by Compliance Program. For general information, see AWS Compliance Programs.

You can download third-party audit reports using AWS Artifact. For more information, see Downloading Reports in AWS Artifact in the AWS Artifact User Guide.
Your compliance responsibility when using AWS Control Tower is determined by the sensitivity of your data, your company's compliance objectives, and applicable laws and regulations. AWS provides the following resources to help with compliance:

- **Security and Compliance Quick Start Guides** – These deployment guides discuss architectural considerations and provide steps for deploying security- and compliance-focused baseline environments on AWS.

- **Architecting for HIPAA Security and Compliance on Amazon Web Services** – This whitepaper describes how companies can use AWS to create HIPAA-compliant applications.

- **AWS Compliance Resources** – This collection of workbooks and guides might apply to your industry and location.

- **AWS Config** – This AWS service assesses how well your resource configurations comply with internal practices, industry guidelines, and regulations.

- **AWS Security Hub** – This AWS service provides a comprehensive view of your security state within AWS that helps you check your compliance with security industry standards and best practices.

## Resilience in AWS Control Tower

The AWS global infrastructure is built around AWS Regions and Availability Zones.

AWS Regions provide multiple physically separated and isolated Availability Zones, which are connected by means of low-latency, high-throughput, and highly redundant networking. Availability Zones allow you to design and operate applications and databases that automatically fail over between Availability Zones without interruption. Availability Zones are more highly available, fault tolerant, and scalable than traditional single or multiple data center infrastructures.

For a list of AWS Regions where AWS Control Tower is available, see [How AWS Regions Work With AWS Control Tower](#).

Your *home region* is defined as the AWS Region in which your landing zone was set up.

For more information about AWS Regions and Availability Zones, see [AWS Global Infrastructure](#).

## Infrastructure Security in AWS Control Tower

AWS Control Tower is protected by the AWS global network security procedures that are described in the [Amazon Web Services: Overview of Security Processes](#) whitepaper.
You use AWS published API calls for access to AWS services and resources within your landing zone through the network. We require Transport Layer Security (TLS) 1.2 and recommend Transport Layer Security (TLS) 1.3 or later. Clients must also support cipher suites with perfect forward secrecy (PFS) such as Ephemeral Diffie-Hellman (DHE) or Elliptic Curve Ephemeral Diffie-Hellman (ECDHE). Most modern systems such as Java 7 and later support these modes.

Additionally, requests must be signed by using an access key ID and a secret access key that is associated with an IAM principal. Or you can use the AWS Security Token Service (AWS STS) to generate temporary security credentials to sign requests.

You can set up security groups to provide additional network infrastructure security for your AWS Control Tower landing zone workloads. For more information, see Walkthrough: Set Up Security Groups in AWS Control Tower With AWS Firewall Manager.
Logging and monitoring in AWS Control Tower

Monitoring allows you to plan for and respond to potential incidents. The results of monitoring activities are stored in log files. Therefore, logging and monitoring are closely related concepts, and they are an important part of the well-architected nature of AWS Control Tower.

When you set up your landing zone, one of the shared accounts created is the log archive account. It is dedicated to collecting all logs centrally, including logs for all of your shared and member accounts. Log files are stored in an Amazon S3 bucket. These log files allow administrators and auditors to review actions and events that have occurred.

As a best practice, you should collect monitoring data from all of the parts of your AWS setup into your logs, so that you can more easily debug a multi-point failure if one occurs. AWS provides several tools for monitoring your resources and activity in your landing zone.

For example, the status of your controls is monitored constantly. You can see their status at a glance in the AWS Control Tower console, or programmatically by means of the AWS Control Tower APIs. The health and status of the accounts you provisioned in Account Factory also is monitored constantly.

View logged actions from the Activities page

In the AWS Control Tower console, the Activities page provides an overview of AWS Control Tower management account actions. To navigate to the AWS Control Tower Activities page, select Activities from the left navigation.

The activities shown in the Activities page are the same ones reported in the AWS CloudTrail events log for AWS Control Tower, but they're shown in a table format. To learn more about a specific activity, select the activity from the table and then choose View details.

You can view member account actions and events in the log archive files.

The following sections describe monitoring and logging in AWS Control Tower with more detail:

Topics

- Integrated tools for monitoring
- Logging AWS Control Tower Actions with AWS CloudTrail
- Lifecycle Events in AWS Control Tower
- Using AWS User Notifications with AWS Control Tower
About logging in AWS Control Tower

AWS Control Tower accomplishes logging of actions and events automatically, through its integration with AWS CloudTrail and AWS Config, and it records them in CloudWatch. All actions are logged, including actions from the AWS Control Tower management account and from your organization's member accounts. Management account actions and events are viewable on the Activities page in the console. You can view member account actions and events in the log archive files.

Organization-level trails

AWS Control Tower sets up a new CloudTrail trail when you set up a landing zone. It is an organization-level trail, which means that it logs all events for the management account and all member accounts in the organization. This feature relies on trusted access to give the management account permissions to create a trail on every member account.

For more information about AWS Control Tower and CloudTrail organization trails, see Creating a trail for an organization.

Note

In AWS Control Tower releases before landing zone version 3.0, AWS Control Tower created a member account trail in each account. When you update to release 3.0, your CloudTrail trail becomes an organization trail. For best practices when moving between trails, see Best practices for changing trails in the CloudTrail User Guide.

When you enroll an account into AWS Control Tower, your account is governed by the AWS CloudTrail trail for the AWS Control Tower organization. If you have an existing deployment of a CloudTrail trail in that account, you may see duplicate charges unless you delete the existing trail for the account before you enroll it in AWS Control Tower.

Note

When you update to landing zone version 3.0, AWS Control Tower deletes the account-level trails (that AWS Control Tower has created) in your enrolled accounts on your behalf. Your existing, account-level log files are preserved in their Amazon S3 bucket.
Amazon S3 bucket policy in the audit account

In AWS Control Tower, AWS services have access to your resources only when the request originates from your organization or organizational unit (OU). An `aws:SourceOrgID` condition must be met for any write permissions.

You can use the `aws:SourceOrgID` condition key and set the value to your **organization ID** in the condition element of your S3 bucket policy. This condition ensures that CloudTrail only can write logs on behalf of accounts within your organization to your S3 bucket; it prevents CloudTrail logs outside your organization from writing to your AWS Control Tower S3 bucket.

This policy remediates a potential security vulnerability, without affecting the functionality of your existing workloads. The policy is shown in the example that follows.

```
S3AuditBucketPolicy:
  Type: AWS::S3::BucketPolicy
  Properties:
    Bucket: !Ref S3AuditBucket
  PolicyDocument:
    Version: 2012-10-17
    Statement:
      - Sid: AllowSSLRequestsOnly
        Effect: Deny
        Principal: '*'
        Action: s3:*
        Resource:
          - !Sub "arn:${AWS::Partition}:s3:::${S3AuditBucket}"  
          - !Sub "arn:${AWS::Partition}:s3:::${S3AuditBucket}/*"
    Condition:
      Bool:
        aws:SecureTransport: false
      - Sid: AWSBucketPermissionsCheck
        Effect: Allow
        Principal:
          Service:
            - cloudtrail.amazonaws.com
            - config.amazonaws.com
        Action: s3:GetBucketAcl
        Resource:
          - !Sub "arn:${AWS::Partition}:s3:::${S3AuditBucket}"  
      - Sid: AWSConfigBucketExistenceCheck
        Effect: Allow
```

S3 bucket policy
Principal:
  Service:
    - cloudtrail.amazonaws.com
    - config.amazonaws.com
Action: s3:ListBucket
Resource:
  - !Sub "arn:${AWS::Partition}:s3:::${S3AuditBucket}"
  - Sid: AWSBucketDeliveryForConfig
Effect: Allow
Principal:
  Service:
    - config.amazonaws.com
Action: s3:PutObject
Resource:
  - Fn::Join:
    - ""
    - [
      - !Sub "arn:${AWS::Partition}:s3:::
      - !Ref "S3AuditBucket"
      - !Sub "/${AWSLogsS3KeyPrefix}/AWSLogs/*/*"
    ]
Condition:
  StringEquals:
    aws:SourceOrgID: !Ref OrganizationId
- Sid: AWSBucketDeliveryForOrganizationTrail
  Effect: Allow
  Principal:
    Service:
      - cloudtrail.amazonaws.com
  Action: s3:PutObject
  Resource: !If 
    [IsAccountLevelBucketPermissionRequiredForCloudTrail, 
    !Sub "arn:${AWS::Partition}:s3:::${S3AuditBucket}/
    ${AWSLogsS3KeyPrefix}/AWSLogs/${Namespace}/**", !Sub "arn:${AWS::Partition}:s3:::
    ${S3AuditBucket}/${AWSLogsS3KeyPrefix}/AWSLogs/${OrganizationId}/**"],
    !Sub "arn:${AWS::Partition}:s3:::${S3AuditBucket}/
    ${AWSLogsS3KeyPrefix}/AWSLogs/**"
  ]
Condition:
  StringEquals:
    aws:SourceOrgID: !Ref OrganizationId

For more information about this condition key, see the IAM documentation and the IAM blog post entitled "Use scalable controls for AWS services accessing your resources."
Integrated tools for monitoring

Monitoring is an important part of maintaining the reliability, availability, and performance of AWS Control Tower and your other AWS solutions. AWS provides the following monitoring tools to watch AWS Control Tower, report when something is wrong, and take automatic actions when appropriate:

- **Amazon CloudWatch** monitors your AWS resources and the applications you run on AWS in real time. You can collect and track metrics, create customized dashboards, and set alarms that notify you or take actions when a specified metric reaches a threshold that you specify. For example, you can have CloudWatch track CPU usage or other metrics of your Amazon EC2 instances and automatically launch new instances when needed. For more information, see the [Amazon CloudWatch User Guide](https://docs.aws.amazon.com/cloudwatch/latest/userguide/).

- **Amazon CloudWatch Events** delivers a near real-time stream of system events that describe changes in AWS resources. CloudWatch Events enables automated event-driven computing, as you can write rules that watch for certain events and trigger automated actions in other AWS services when these events happen. For more information, see the [Amazon CloudWatch Events User Guide](https://docs.aws.amazon.com/cloudwatch/latest/monitoring/cloudwatch-events.html).

- **Amazon CloudWatch Logs** enables you to monitor, store, and access your log files from Amazon EC2 instances, CloudTrail, and other sources. CloudWatch Logs can monitor information in the log files and notify you when certain thresholds are met. You can also archive your log data in highly durable storage. For more information, see the [Amazon CloudWatch Logs User Guide](https://docs.aws.amazon.com/cloudwatch/latest/logs/).

- **AWS CloudTrail** captures API calls and related events made by or on behalf of your AWS account and delivers the log files to an Amazon S3 bucket that you specify. You can identify which users and accounts called AWS, the source IP address from which the calls were made, and when the calls occurred.

**Tip:** You can view and query CloudTrail activity on an account through CloudWatch Logs and CloudWatch Logs Insights. This activity includes AWS Control Tower lifecycle events. CloudWatch Logs’ capabilities allow you to perform more granular and precise queries than you would normally be able to make using CloudTrail.

For more information, see [Logging AWS Control Tower Actions with AWS CloudTrail](https://docs.aws.amazon.com/cloudtrail/latest/userguide/logging-control-tower-actions.html).
Logging AWS Control Tower Actions with AWS CloudTrail

AWS Control Tower is integrated with AWS CloudTrail, a service that provides a record of actions taken by a user, role, or an AWS service in AWS Control Tower. CloudTrail captures actions for AWS Control Tower as events. If you create a trail, you can enable continuous delivery of CloudTrail events to an Amazon S3 bucket, including events for AWS Control Tower.

If you don't configure a trail, you can still view the most recent events in the CloudTrail console in Event history. Using the information collected by CloudTrail, you can determine the request that was made to AWS Control Tower, the IP address from which the request was made, who made the request, when it was made, and additional details.

To learn more about CloudTrail, including how to configure and enable it, see the AWS CloudTrail User Guide.

AWS Control Tower Information in CloudTrail

CloudTrail is enabled on your AWS account when you create the account. When supported event activity occurs in AWS Control Tower, that activity is recorded in a CloudTrail event along with other AWS service events in Event history. You can view, search, and download recent events in your AWS account. For more information, see Viewing Events with CloudTrail Event History.

Note

In AWS Control Tower releases before landing zone version 3.0, AWS Control Tower created a member account trail. When you update to release 3.0, your CloudTrail trail is updated to become an organization trail. For best practices when moving between trails, see Creating an organizational trail in the CloudTrail User Guide.

Recommended: Create a trail

For an ongoing record of events in your AWS account, including events for AWS Control Tower, create a trail. A trail enables CloudTrail to deliver log files to an Amazon S3 bucket. By default, when you create a trail in the console, the trail applies to all AWS Regions. The trail logs events from all Regions in the AWS partition and delivers the log files to the Amazon S3 bucket that you specify. Additionally, you can configure other AWS services to further analyze and act upon the event data collected in CloudTrail logs. For more information, see the following:
AWS Control Tower logs the following actions as events in CloudTrail log files:

**Public APIs**
- DisableControl
- EnableControl
- GetControlOperation
- ListEnabledControls

**Other APIs**
- SetupLandingZone
- UpdateAccountFactoryConfig
- ManageOrganizationalUnit
- CreateManagedAccount
- EnableGuardrail
- GetLandingZoneStatus
- GetHomeRegion
- ListManagedAccounts
- DescribeManagedAccount
- DescribeAccountFactoryConfig
- DescribeGuardrailForTarget
- DescribeManagedOrganizationalUnit
- ListEnabledGuardrails

AWS Control Tower Information in CloudTrail
Every event or log entry contains information about who generated the request. The identity
time helps you determine the following:

- Whether the request was made with root or AWS Identity and Access Management (IAM) user
  credentials.
- Whether the request was made with temporary security credentials for a role or federated user.
- Whether the request was made by another AWS service.
- Whether the request was rejected as access denied or processed successfully.

For more information, see the CloudTrail userIdentity Element.

**Example: AWS Control Tower Log File Entries**

A trail is a configuration that enables delivery of events as log files to an Amazon S3 bucket that
you specify. CloudTrail log files contain one or more log entries. An event represents a single
request from any source and includes information about the requested action, the date and time
of the action, request parameters, and so on. CloudTrail events don't appear in any specific order in
the log files.
The following example shows a CloudTrail log entry that shows the structure of a typical log file entry for a SetupLandingZone AWS Control Tower event, including a record of the identity of the user who initiated the action.

```
{
  "eventVersion": "1.05",
  "userIdentity": {
    "type": "AssumedRole",
    "principalId": "AIDACKCEVSQ6C2EXAMPLE:backend-test-assume-role-session",
    "arn": "arn:aws:sts::76543EXAMPLE;:assumed-role/AWSControlTowerTestAdmin/backend-test-assume-role-session",
    "accountId": "76543EXAMPLE",
    "accessKeyId": "AKIAIOSFODNN7EXAMPLE",
    "sessionContext": {
      "attributes": {
        "mfaAuthenticated": "false",
        "creationDate": "2018-11-20T19:36:11Z"
      },
      "sessionIssuer": {
        "type": "Role",
        "principalId": "AIDACKCEVSQ6C2EXAMPLE",
        "arn": "arn:aws:iam::AKIAIOSFODNN7EXAMPLE:role/AWSControlTowerTestAdmin",
        "accountId": "AIDACKCEVSQ6C2EXAMPLE",
        "userName": "AWSControlTowerTestAdmin"
      }
    }
  },
  "eventTime": "2018-11-20T19:36:15Z",
  "eventSource": "controltower.amazonaws.com",
  "eventName": "SetupLandingZone",
  "awsRegion": "us-east-1",
  "sourceIPAddress": "AWS Internal",
  "userAgent": "Coral/Netty4",
  "errorCode": "InvalidParametersException",
  "errorMessage": "Home region EU_CENTRAL_1 is unsupported",
  "requestParameters": {
    "homeRegion": "EU_CENTRAL_1",
    "logAccountEmail": "HIDDEN_DUE_TO_SECURITY_REASONS",
    "sharedServiceAccountEmail": "HIDDEN_DUE_TO_SECURITY_REASONS",
    "securityAccountEmail": "HIDDEN_DUE_TO_SECURITY_REASONS",
    "securityNotificationEmail": "HIDDEN_DUE_TO_SECURITY_REASONS"
  },
  "responseElements": null,
}
```
Monitor resource changes with AWS Config

AWS Control Tower enables AWS Config on all enrolled accounts, so that it can monitor compliance through detective controls, record resource changes, and deliver resource change logs to the log archive account.

**If your landing zone version is earlier than 3.0:** For your enrolled accounts, AWS Config logs all changes to resources, for all Regions in which the account operates. Each change is modeled as a configuration item (CI), which contains information such as the resource identifier, the Region, the date that each change was recorded, and whether the change relates to a known resource or a newly discovered one.

**If your landing zone version is 3.0 or later:** AWS Control Tower limits recording for global resources, such as IAM users, groups, roles, and customer managed polices, to your home Region only. Copies of global resource changes are not stored in every Region. This limitation of resource recording conforms with AWS Config best practices. A full list of global resources is available in AWS Config documentation.

- To learn more about AWS Config, see [How AWS Config works](https).
- For a list of resources that AWS Config can support, see [Supported resource types](https).
- To learn about how to customize resource tracking in the AWS Control Tower environment, see the blog post entitled [Customize AWS Config resource tracking in AWS Control Tower](https).

AWS Control Tower sets up an AWS Config delivery channel in all enrolled accounts. Through this delivery channel, it logs all changes recorded by AWS Config in the log archive account, where they are stored to a folder in an Amazon Simple Storage Service bucket.

Manage AWS Config costs in AWS Control Tower

This section describes how AWS Config records and bills you for changes to resources in your AWS Control Tower accounts. This information may help you understand how to manage the costs.
associated with AWS Config, when you're utilizing AWS Control Tower. AWS Control Tower adds no additional cost.

**Note**

*If your landing zone version is 3.0 or later:* AWS Control Tower limits AWS Config recording for global resources, such as IAM users, groups, roles, and customer-managed polices, to your home Region only. Therefore, some of the information in this section may not apply to your landing zone.

AWS Config is designed to record each change to each resource, in each Region where an account operates, as a configuration item (CI). AWS Config bills you for each configuration item that it generates.

**How AWS Config operates**

AWS Config records resources in each Region, separately. Some global resources, such as IAM roles, are recorded once per Region. For example, if you create a new IAM role in an enrolled account that is operating in five Regions, AWS Config generates five CIs, one for each Region. Other global resources, such as Route 53 hosted zones, are recorded only once across all Regions. For example, if you create a new Route 53 hosted zone in an enrolled account, AWS Config generates one CI, regardless of how many Regions are selected for that account. For a list that helps you distinguish these types of resources, see [The same resource is recorded multiple times](#).

**Note**

When AWS Control Tower works with AWS Config, a Region may be governed by AWS Control Tower, or ungoverned, and AWS Config still records the changes if the account operates in that Region.

**AWS Config detects two types of relationships in resources**

AWS Config makes a distinction between *direct* and *indirect* relationships among resources. If a resource is returned in another resource's Describe API call, those resources are recorded as a direct relationship. When you change a resource in a direct relationship with another resource, AWS Config does not make a CI for both resources.
For example, if you create an Amazon EC2 instance, and the API requires you to create a network interface, AWS Config considers the Amazon EC2 instance to have a direct relationship with the network interface. As a result, AWS Config generates only one CI.

AWS Config records separate changes for resource relationships that are indirect relationships. For example, AWS Config generates two CIs if you create a security group and add an associated Amazon EC2 instance that’s part of the security group.

For more information about direct and indirect relationships, see What is a direct and an indirect relationship with respect to a resource?

You can find a list of resource relationships in the AWS Config documentation.

View the AWS Config recorder data on enrolled accounts

AWS Config is integrated with CloudWatch so that you can view AWS Config CIs in a dashboard. For more information, see the blog post entitled AWS Config supports Amazon CloudWatch metrics.

Programmatically, to view AWS Config data, you can work with the AWS CLI, or you can utilize other AWS tools.

Query the AWS Config recorder data on a specific resource

You can use the AWS CLI to retrieve a list of the most recent changes for a resource.

Resource history command:

- `aws configservice get-resource-config-history --resource-type RESOURCE-TYPE --resource-id RESOURCE-ID --region REGION`

To learn more, see the API documentation for get-config-history.

Visualize AWS Config data with Amazon QuickSight

You can visualize and query resources recorded by AWS Config across your entire organization. For more information, see Visualizing AWS Config data using Amazon Athena and Amazon QuickSight.

Troubleshooting AWS Config in AWS Control Tower

This section gives information about some problems you may encounter when using AWS Config with AWS Control Tower.
High AWS Config costs

If your workflow includes processes that create, update, or delete resources frequently, or if it handles resources in large numbers, that workflow may generate large numbers of CIs. If you run these processes in a non-production account, consider unenrolling the account. You may need to de-activate the AWS Config recorder for that account manually.

⚠️ Note

After you unenroll the account, AWS Control Tower cannot enforce detective controls or log account events, such as AWS Config activities, for resources in that account.

For more information, see Unmanage an enrolled account. To learn how to deactivate the AWS Config recorder, see Managing the configuration recorder.

The same resource is recorded multiple times

Check whether the resource is a global resource. For AWS Control Tower landing zones prior to version 3.0, AWS Config may record certain global resources once for each Region in which AWS Config is operating. For example, if AWS Config is enabled on eight Regions, each role is recorded eight times.

The following resources are recorded once for each Region in which AWS Config is operating:

- AWS::IAM::Group
- AWS::IAM::Policy
- AWS::IAM::Role
- AWS::IAM::User

Other global resources are recorded only once. Here are some examples of resources that are recorded once:

- AWS::Route53::HostedZone
- AWS::Route53::HealthCheck
- AWS::ECR::PublicRepository
- AWS::GlobalAccelerator::Listener
• AWS::GlobalAccelerator::EndpointGroup
• AWS::GlobalAccelerator::Accelerator

AWS Config did not record a resource

Certain resources have dependency relationships with other resources. These relationships may be direct or indirect. You can find a list of deprecated indirect relationships in the AWS Config FAQ.

Lifecycle Events in AWS Control Tower

Some events logged by AWS Control Tower are lifecycle events. A lifecycle event's purpose is to mark the completion of certain AWS Control Tower actions that change the state of resources. Lifecycle events apply to resources that AWS Control Tower creates or manages, such as organizational units (OUs), accounts, and controls.

Characteristics of AWS Control Tower lifecycle events

• For each lifecycle event, the event log shows whether the originating Control Tower action completed successfully, or failed.
• AWS CloudTrail automatically records each lifecycle event as a non-API AWS service event. For more information, see the AWS CloudTrail User Guide.
• Each lifecycle event also is delivered to the Amazon EventBridge and Amazon CloudWatch Events services.

Lifecycle events in AWS Control Tower offer two primary benefits:

• Because a lifecycle event registers the completion of an AWS Control Tower action, you can create an Amazon EventBridge rule or Amazon CloudWatch Events rule that can trigger the next steps in your automation workflow, based on the state of the lifecycle event.
• The logs provide additional detail to assist administrators and auditors in reviewing certain types of activity in your organizations.

How lifecycle events work

AWS Control Tower relies upon multiple services to implement its actions. Therefore, each lifecycle event is recorded only after a series of actions is complete. For example, when you enable a control
on an OU, AWS Control Tower launches a series of sub-steps that implement the request. The final result of the entire series of sub-steps is recorded in the log as the state of the lifecycle event.

- If every underlying sub-step has completed successfully, the lifecycle event state is recorded as **Succeeded**.
- If any of the underlying sub-steps did not complete successfully, the lifecycle event state is recorded as **Failed**.

Each lifecycle event includes a logged timestamp that shows when the AWS Control Tower action was initiated, and another timestamp showing when the lifecycle event is completed, marking success or failure.

**Viewing lifecycle events in Control Tower**

You can view lifecycle events from the **Activities** page in your AWS Control Tower dashboard.

- To navigate to the **Activities** page, choose **Activities** from the left navigation pane.
- To get more details about a specific event, select the event and then choose the **View details** button at the upper right.

For more information about how to integrate AWS Control Tower lifecycle events into your workflows, see this blog post, [Using lifecycle events to track AWS Control Tower actions and trigger automated workflows](#).

**Expected behavior of CreateManagedAccount and UpdateManagedAccount lifecycle events**

When you create an account or enroll an account in AWS Control Tower, those two actions call the same internal API. If there's an error during the process, it usually occurs after the account has been created but is not fully provisioned. When you retry to create the account after the error, or when you try to update the provisioned product, AWS Control Tower sees that the account already exists. Because the account exists, AWS Control Tower records the UpdateManagedAccount lifecycle event instead of the CreateManagedAccount lifecycle event at the end of the retry request. You may have expected to see another CreateManagedAccount event because of the error. However, the UpdateManagedAccount lifecycle event is the expected and desired behavior.

If you plan to create or enroll accounts into AWS Control Tower using automated methods, program the Lambda function to look for **UpdateManagedAccount** lifecycle events as well as **CreateManagedAccount** lifecycle events.
Lifecycle event names

Each lifecycle event is named so that it corresponds to the originating AWS Control Tower action, which also is recorded by AWS CloudTrail. Thus, for example, a lifecycle event originated by the AWS Control Tower CreateManagedAccount CloudTrail event is named CreateManagedAccount.

Each name in the list that follows is a link to an example of the logged detail in JSON format. The additional detail shown in these examples is taken from the Amazon CloudWatch event logs.

Although JSON does not support comments, some comments have been added in the examples for explanatory purposes. Comments are preceded by "//" and they appear in the right side of the examples.

In these examples, some account names and organization names are obscured. An accountId is always a 12-number sequence, which has been replaced with "xxxxxxxxxxxxx" in the examples. An organizationalUnitID is a unique string of letters and numbers. Its form is preserved in the examples.

- **CreateManagedAccount**: The log records whether AWS Control Tower successfully completed every action to create and provision a new account using account factory.
- **UpdateManagedAccount**: The log records whether AWS Control Tower successfully completed every action to update a provisioned product that’s associated with an account you had previously created by using account factory.
- **EnableGuardrail**: The log records whether AWS Control Tower successfully completed every action to enable a control on an OU that was created by AWS Control Tower.
- **DisableGuardrail**: The log records whether AWS Control Tower successfully completed every action to disable a control on an OU that was created by AWS Control Tower.
- **SetupLandingZone**: The log records whether AWS Control Tower successfully completed every action to set up a landing zone.
- **UpdateLandingZone**: The log records whether AWS Control Tower successfully completed every action to update your existing landing zone.
- **RegisterOrganizationalUnit**: The log records whether AWS Control Tower successfully completed every action to enable its governance features on an OU.
- **DeregisterOrganizationalUnit**: The log records whether AWS Control Tower successfully completed every action to disable its governance features on an OU.
• **PrecheckOrganizationalUnit**: The log records whether AWS Control Tower detected any resource that would prevent the **Extend governance** operation from completing successfully.

The following sections provide a list of AWS Control Tower lifecycle events, with examples of the details logged for each type of lifecycle event.

**CreateManagedAccount**

This lifecycle event records whether AWS Control Tower successfully created and provisioned a new account using account factory. This event corresponds to the AWS Control Tower CreateManagedAccount CloudTrail event. The lifecycle event log includes the accountName and accountId of the newly-created account, and the organizationalUnitName and organizationalUnitId of the OU in which the account has been placed.

```json
{
    "version": "0",
    "id": "999cccaa-eaaa-0000-1111-123456789012",
    "detail-type": "AWS Service Event via CloudTrail",
    "source": "aws.controltower",
    "account": "XXXXXXXXXXXX",
    "time": "2018-08-30T21:42:18Z",
    "region": "us-east-1",
    "resources": [],
    "detail": {
        "eventVersion": "1.05",
        "userIdentity": {
            "accountId": "XXXXXXXXXXXX",
            "invokedBy": "AWS Internal"
        },
        "eventTime": "2018-08-30T21:42:18Z",
        "eventSource": "controltower.amazonaws.com",
        "eventName": "CreateManagedAccount",
        "awsRegion": "us-east-1",
        "sourceIPAddress": "AWS Internal",
        "userAgent": "AWS Internal",
        "eventID": "0000000-0000-0000-1111-123456789012",
    }
}
```
UpdateManagedAccount

This lifecycle event records whether AWS Control Tower successfully updated the provisioned product associated with an account that was created previously by using account factory. This event corresponds to the AWS Control Tower UpdateManagedAccount CloudTrail event. The lifecycle event log includes the accountName and accountId of the associated account, and the organizationalUnitName and organizationalUnitId of the OU in which the updated account is placed.

{
    "version": "0",
    "id": "999cccaa-eaaa-0000-1111-123456789012",
    "detail-type": "AWS Service Event via CloudTrail",
    "source": "aws.controltower",
    "account": "XXXXXXXXXXXX",
    "region": "us-east-1", // AWS Control Tower home region.
    "resources": []
}
EnableGuardrail

This lifecycle event records whether AWS Control Tower successfully enabled a control on an OU that is being managed by AWS Control Tower. This event corresponds to the AWS Control Tower EnableGuardrail CloudTrail event. The lifecycle event log includes the guardrailId and guardrailBehavior of the control, and the organizationalUnitName and organizationalUnitId of the OU on which the control is enabled.
EnableGuardrail

AWS Control Tower successfully enabled a guardrail on an organizational unit.

`EnableGuardrail`
DisableGuardrail

This lifecycle event records whether AWS Control Tower successfully disabled a control on an OU that is being managed by AWS Control Tower. This event corresponds to the AWS Control Tower DisableGuardrail CloudTrail event. The lifecycle event log includes the guardrailId and guardrailBehavior of the control, and the organizationalUnitName and organizationalUnitId of the OU on which the control is disabled.
SetupLandingZone

This lifecycle event records whether AWS Control Tower successfully set up a landing zone. This event corresponds to the AWS Control Tower SetupLandingZone CloudTrail event. The lifecycle event log includes the rootOrganizationalId, which is ID of the organization that AWS Control Tower creates from the management account. The log entry also includes the organizationalUnitName and organizationalUnitId for each of the OUs, and the accountName and accountId for each account, that are created when AWS Control Tower sets up the landing zone.
"resources": [ ],
"detail": {
    "eventVersion": "1.05",
    "userIdentity": {
        "accountId": "XXXXXXXXXXXXX", // Management-account ID.
        "invokedBy": "AWS Internal"
    },
    "eventSource": "controltower.amazonaws.com",
    "eventName": "SetupLandingZone",
    "awsRegion": "us-east-1",
    "sourceIPAddress": "AWS Internal",
    "userAgent": "AWS Internal",
    "eventID": "CloudTrail_event_ID", // This value is generated by CloudTrail.
    "readOnly": false,
    "eventType": "AwsServiceEvent",
    "serviceEventDetails": {
        "setupLandingZoneStatus": {
            "state": "SUCCEEDED", // Status of entire lifecycle operation.
            "message": "AWS Control Tower successfully set up a new landing zone."
        },
        "rootOrganizationalId": "r-1234",
        "organizationalUnits": [ // Use a list.
            {
                "organizationalUnitName": "Security", // Security OU name.
                "organizationalUnitId": "ou-adpf-302pk332" // Security OU ID.
            },
            {
                "organizationalUnitName": "Custom", // Custom OU name.
                "organizationalUnitId": "ou-adpf-302pk332" // Custom OU ID.
            }
        ],
        "accounts": [ // All created accounts are here. Use a list of "account" objects.
            {
                "accountName": "Audit",
                "accountId": "XXXXXXXXXXXXX"
UpdateLandingZone

This lifecycle event records whether AWS Control Tower successfully updated your existing landing zone. This event corresponds to the AWS Control Tower UpdateLandingZone CloudTrail event. The lifecycle event log includes the rootOrganizationalId, which is ID of the (updated) organization governed by AWS Control Tower. The log entry also includes the organizationalUnitName and organizationalUnitId for each of the OUs, and the accountName and accountID for each account, that was created previously, when AWS Control Tower originally set up the landing zone.

```json
{
    "version": "0",
    "id": "999cccaa-eaaa-0000-1111-123456789012", // Request ID.
    "detail-type": "AWS Service Event via CloudTrail",
    "source": "aws.controltower",
    "account": "XXXXXXXXXXXX", // Management account ID.
    "region": "us-east-1", // Management account CloudTrail region.
    "resources": [ ],
    "detail": {
        "eventVersion": "1.05",
        "userIdentity": {
            "accountId": "XXXXXXXXXXXX", // Management account ID.
            "invokedBy": "AWS Internal"
        }
    }
}
```
"eventSource": "controltower.amazonaws.com",
"eventName": "UpdateLandingZone",
"awsRegion": "us-east-1", // AWS Control Tower home region.
"sourceIPAddress": "AWS Internal",
"userAgent": "AWS Internal",
"eventID": "CloudTrail_event_ID", // This value is generated by CloudTrail.
"readOnly": false,
"eventType": "AwsServiceEvent",
"serviceEventDetails": {
  "updateLandingZoneStatus": {
    "state": "SUCCEEDED", // Status of entire operation.
    "message": "AWS Control Tower successfully updated a landing zone."
  }
},
"rootOrganizationalId": "r-1234",
"organizationalUnits": [
  {
    "organizationalUnitName": "Security", // Security OU name.
    "organizationalUnitId": "ou-adpf-302pk332" // Security OU ID.
  },
  {
    "organizationalUnitName": "Custom", // Custom OU name.
    "organizationalUnitId": "ou-adpf-302pk332" // Custom OU ID.
  }
],
"accounts": [ // All created accounts are here. Use a list of "account" objects.
  {
    "accountName": "Audit",
    "accountId": "XXXXXXXXXXXXX"
  },
  {
    "accountName": "Log archive",
    "accountId": "XXXXXXXXXXXX"
  }
]
RegisterOrganizationalUnit

This lifecycle event records whether AWS Control Tower successfully enabled its governance features on an OU. This event corresponds to the AWS Control Tower RegisterOrganizationalUnit CloudTrail event. The lifecycle event log includes the organizationalUnitName and organizationalUnitId of the OU that AWS Control Tower has brought under its governance.

```json
{
    "version": "0",
    "id": "999ccca-a-aa000-1111-23456789012",
    "detail-type": "AWS Service Event via CloudTrail",
    "source": "aws.controltower",
    "account": "123456789012",
    "time": "2018-08-30T21:42:18Z",
    "region": "us-east-1",
    "resources": [ ],
    "detail": {
        "eventVersion": "1.05",
        "userIdentity": {
            "accountId": "XXXXXXXXXXXX",
            "invokedBy": "AWS Internal"
        },
        "eventTime": "2018-08-30T21:42:18Z",
        "eventSource": "controltower.amazonaws.com",
        "eventName": "RegisterOrganizationalUnit",
        "awsRegion": "us-east-1",
        "sourceIPAddress": "AWS Internal",
        "userAgent": "AWS Internal",
        "eventId": "0000000-0000-0000-1111-23456789012",
        "readOnly": false,
        "eventType": "AwsServiceEvent",
        "serviceEventDetails": {
            "registerOrganizationalUnitStatus": {
                "state": "SUCCEEDED"
            }
        }
    }
}
```
"message": "AWS Control Tower successfully registered an organizational unit.",

"organizationalUnit": {
  "organizationalUnitName": "Test",
  "organizationalUnitId": "ou-adpf-302pk332"
}

"requestedTimestamp": "2018-08-30T21:42:18Z",
"completedTimestamp": "2018-08-30T21:42:18Z"
}

DeregisterOrganizationalUnit

This lifecycle event records whether AWS Control Tower successfully disabled its governance features on an OU. This event corresponds to the AWS Control Tower DeregisterOrganizationalUnit CloudTrail event. The lifecycle event log includes the organizationalUnitName and organizationalUnitId of the OU on which AWS Control Tower has disabled its governance features.

{
  "version": "0",
  "id": "999cccaaa-eaaa-0000-1111-123456789012",
  "detail-type": "AWS Service Event via CloudTrail",
  "source": "aws.controltower",
  "account": "XXXXXXXXXXXX",
  "time": "2018-08-30T21:42:18Z",
  "region": "us-east-1",
  "resources": [],
  "detail": {
    "eventVersion": "1.05",
    "userIdentity": {
      "accountId": "XXXXXXXXXXXX",
      "invokedBy": "AWS Internal"
    },
    "eventTime": "2018-08-30T21:42:18Z",
    "eventSource": "controltower.amazonaws.com",
    "eventName": "DeregisterOrganizationalUnit",
  }
}
PrecheckOrganizationalUnit

This lifecycle event records whether AWS Control Tower successfully performed prechecks on an OU. This event corresponds to the AWS Control Tower PrecheckOrganizationalUnit CloudTrail event. The lifecycle event log contains a field for the Id, Name, and failedPrechecks values, for each resource on which AWS Control Tower has performed prechecks during the OU registration process.

The event log also contains information about the nested accounts on which the prechecks were performed, including the accountName, accountId, and failedPrechecks fields.

If the failedPrechecks value is empty, it means that all prechecks for that resource passed successfully.

- This event is emitted only if there is a precheck failure.
- This event is not emitted if you are registering an empty OU.
Example of event:

```
{
    "eventVersion": "1.08",
    "userIdentity": {
        "accountId": "XXXXXXXXXXXX",
        "invokedBy": "AWS Internal"
    },
    "eventTime": "2021-09-20T22:45:43Z",
    "eventSource": "controltower.amazonaws.com",
    "eventName": "PrecheckOrganizationalUnit",
    "awsRegion": "us-west-2",
    "sourceIPAddress": "AWS Internal",
    "userAgent": "AWS Internal",
    "eventID": "b41a9d67-0da4-4dc5-a87a-25fa19dc5305",
    "readOnly": false,
    "eventType": "AwsServiceEvent",
    "managementEvent": true,
    "recipientAccountId": "XXXXXXXXXXXX",
    "serviceEventDetails": {
        "precheckOrganizationalUnitStatus": {
            "organizationalUnit": {
                "organizationalUnitName": "Ou-123",
                "organizationalUnitId": "ou-abcd-123456",
                "failedPrechecks": [
                    "SCP_CONFLICT"
                ]
            },
            "accounts": [
                {
                    "accountName": "Child Account 1",
                    "accountId": "XXXXXXXXXXXX",
                    "failedPrechecks": [
                        "FAILED_TO_ASSUME_ROLE"
                    ]
                },
                {
                    "accountName": "Child Account 2",
                    "accountId": "XXXXXXXXXXXX",
                    "failedPrechecks": [
                        "FAILED_TO_ASSUME_ROLE"
                    ]
                }
            ]
        }
    }
}
```
Using AWS User Notifications with AWS Control Tower

You can use AWS User Notifications to set up delivery channels to be notified about AWS Control Tower events. You receive a notification when an event matches a rule that you specify. You can receive notifications for events through multiple channels, including email, AWS Chatbot chat notifications, or AWS Console Mobile App push notifications. You can also see notifications in the Console Notifications Center.

AWS User Notifications supports aggregation, which can reduce the number of notifications you receive during specific events. Notifications also are visible in the Console Notifications Center.

The advantages of subscribing to notifications through AWS User Notifications instead of EventBridge include:

- A friendlier user interface (UI).
- Integration with the AWS console, in the bell/notifications area on the global navigation bar.
- Native support for email notifications, there's no need to set up Amazon SNS.
• Most notably, support for mobile push notifications, exclusive to AWS User Notifications.

For example, one type of notification you may wish to receive is in case of Security Hub critical and high severity findings. A code snippet in JSON to set up that notification subscription may look something like this:

```json
{
    "detail": {
        "findings": {
            "Compliance": {
                "Status": ["FAILED", "WARNING", "NOTAVAILABLE"]
            },
            "RecordState": ["ACTIVE"],
            "Severity": {
                "Label": ["CRITICAL", "HIGH"]
            },
            "Workflow": {
                "Status": ["NEW", "NOTIFIED"]
            }
        }
    }
}
```

**Event filtering**

• You can filter events by service and name using the filters available on the AWS User Notifications console.

• You can filter events by specific properties if you create your own EventBridge filter from JSON code.

**Example AWS Control Tower event**

Here is a generalized example event for AWS Control Tower.

• It an EventBridge event.

• You can subscribe to EventBridge events (such as this one) using AWS User Notifications.

```json
{
    "version": "0",
```
"id": "<id>", // alphanumeric string
"detail-type": "AWS Service Event via CloudTrail",
"source": "aws.controltower",
"account": "<account ID>", // Management account ID.
"time": "<date>", // Format: yyyy-MM-dd'T'hh:mm:ssZ
"region": "<region>", // AWS Control Tower home region.
"resources": [],
"detail": {
    "eventVersion": "1.05",
    "userIdentity": {
        "accountId": "121212121212",
        "invokedBy": "AWS Internal"
    },
    "eventSource": "controltower.amazonaws.com",
    "eventName": "<event name>", // one of the 9 event names in https://docs.aws.amazon.com/controltower/latest/userguide/lifecycle-events.html
    "awsRegion": "<region>",
    "sourceIPAddress": "AWS Internal",
    "userAgent": "AWS Internal",
    "eventId": "<id>",
    "readOnly": false,
    "eventType": "AwsServiceEvent",
    "serviceEventDetails": {
        // the contents of this object vary depending on the event subtype and event state
    }
}
Walkthroughs

This chapter contains walkthrough procedures that can help you in your use of AWS Control Tower.

Topics

- Walkthrough: Move from ALZ to AWS Control Tower
- Walkthrough: Automate Account Provisioning in AWS Control Tower by Service Catalog APIs
- Walkthrough: Configure AWS Control Tower Without a VPC
- Manage AWS Control Tower Resources
- Walkthrough: Set Up Security Groups in AWS Control Tower With AWS Firewall Manager
- Walkthrough: Decommission an AWS Control Tower Landing Zone

Walkthrough: Move from ALZ to AWS Control Tower

Many AWS customers have adopted the AWS Landing Zone solution (ALZ) to set up a secure, compliant, multi-account AWS environment. To reduce the burden of managing a landing zone, AWS created the managed service called AWS Control Tower.

No additional features are scheduled for ALZ; it is in long-term support only. Therefore, we recommend that you move to the AWS Control Tower service from ALZ. The blog that is linked in this chapter walks you through different considerations for that move, and it explains how you can plan a successful migration from ALZ to AWS Control Tower.

Blog: Migrate AWS Landing Zone solution to AWS Control Tower

AWS Prescriptive Guidance offers more extensive documentation, including steps for transitioning from ALZ to AWS Control Tower. Essentially, you will enable AWS Control Tower governance in your existing organization that is running ALZ, based upon a number of prerequisites. For information, see Transitioning from AWS Landing Zone to AWS Control Tower.

Walkthrough: Automate Account Provisioning in AWS Control Tower by Service Catalog APIs

AWS Control Tower is integrated with several other AWS services, such as AWS Service Catalog. You can use the APIs to create and provision your member accounts in AWS Control Tower.
The video shows you how to provision accounts in an automated, batch fashion, by calling the AWS Service Catalog APIs. For provisioning, you'll call the `ProvisionProduct` API from the AWS command line interface (CLI), and you'll specify a JSON file that contains the parameters for each account you'd like to set up. The video illustrates installing and using the AWS Cloud9 development environment to perform this work. The CLI commands would be the same if you use AWS Cloudshell instead of AWS Cloud9.

Note
You also can adapt this approach for automating account updates, by calling the `UpdateProvisionedProduct` API of AWS Service Catalog for each account. You can write a script to update the accounts, one by one.

As a completely different automation method, if you are familiar with Terraform, you can provision accounts with AWS Control Tower Account Factory for Terraform (AFT).

Sample automation administration role

Here is a sample template you can use to help configure your automation administration role in the management account. You would configure this role in your management account so it can perform the automation with Administrator access in the target accounts.

```yaml
AWSTemplateFormatVersion: 2010-09-09
Description: Configure the SampleAutoAdminRole

Resources:
  AdministrationRole:
    Type: AWS::IAM::Role
    Properties:
      RoleName: SampleAutoAdminRole
      AssumeRolePolicyDocument:
        Version: 2012-10-17
        Statement:
          - Effect: Allow
            Principal:
              Service: cloudformation.amazonaws.com
            Action:
              - sts:AssumeRole
            Path: /
      Policies:
```

Walkthrough: Automate Account Provisioning in AWS Control Tower by Service Catalog APIs
Sample automation execution role

Here is a sample template you can use to help you set up your automation execution role. You would configure this role in the target accounts.

```json
AWSTemplateFormatVersion: "2010-09-09"
Description: "Create automation execution role for creating Sample Additional Role."

Parameters:
  AdminAccountId:
    Type: "String"
    Description: "Account ID for the administrator account (typically management, security or shared services)."
  AdminRoleName:
    Type: "String"
    Description: "Role name for automation administrator access."
    Default: "SampleAutomationAdministrationRole"
  ExecutionRoleName:
    Type: "String"
    Description: "Role name for automation execution."
    Default: "SampleAutomationExecutionRole"
  SessionDurationInSecs:
    Type: "Number"
    Description: "Maximum session duration in seconds."
    Default: 14400

Resources:
  # This needs to run after AdminRoleName exists.
  ExecutionRole:
    Type: "AWS::IAM::Role"
    Properties:
      RoleName: !Ref ExecutionRoleName
      MaxSessionDuration: !Ref SessionDurationInSecs
```

Walkthrough: Automate Account Provisioning in AWS Control Tower by Service Catalog APIs
AssumeRolePolicyDocument:
  Version: "2012-10-17"
  Statement:
    - Effect: "Allow"
      Principal:
        AWS:
          - !Sub "arn:aws:iam::${AdminAccountId}:role/${AdminRoleName}"
      Action:
        - "sts:AssumeRole"
      Path: "/"
      ManagedPolicyArns:
        - "arn:aws:iam::aws:policy/AdministratorAccess"

After configuring these roles, you call the AWS Service Catalog APIs to perform the automated tasks. The CLI commands are given in the video.

Sample provisioning input for Service Catalog API

Here is a sample of the input you can give to the Service Catalog ProvisionProduct API if you're using the API to provision AWS Control Tower accounts:

```json
{
  pathId: "lpv2-7n2o3nudljh4e",
  productId: "prod-y422ydggje2rs",
  provisionedProductName: "Example product 1",
  provisioningArtifactId: "pa-2mmz36cfpj2p4",
  provisioningParameters: [
    {
      key: "AccountEmail",
      value: "abc@amazon.com"
    },
    {
      key: "AccountName",
      value: "ABC"
    },
    {
      key: "ManagedOrganizationalUnit",
      value: "Custom (ou-xfe5-a8hb8m18)"
    },
    {
      key: "SSOUserEmail",
      value: "abc@amazon.com"
    },
  ]
}
```
{  
    key: "SSOUserFirstName",  
    value: "John"  
},  
{  
    key: "SSOUserLastName",  
    value: "Smith"  
}  
],  
provisionToken: "c3c795a1-9824-4fb2-a4c2-4b1841be4068"  
}

For more information, see the API reference for Service Catalog.

⚠️ Note

Notice that the format of the input string for the value of ManagedOrganizationalUnit has changed from OU_NAME to OU_NAME (OU_ID). The video that follows does not mention this change.

Video Walkthrough

This video (6:58) describes how to automate account deployments in AWS Control Tower. For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.

Video Walkthrough of Automated Account Provisioning in AWS Control Tower.

Walkthrough: Configure AWS Control Tower Without a VPC

This topic walks through how to configure your AWS Control Tower accounts without a VPC.

If your workload does not require a VPC, you can do the following:

- You can delete the AWS Control Tower virtual private cloud (VPC). This VPC was created when you set up your landing zone.
- You can change your Account Factory settings so that new AWS Control Tower accounts are created without an associated VPC.
Important

If you provision Account Factory accounts with VPC internet access settings enabled, that Account Factory setting overrides the control Disallow internet access for an Amazon VPC instance managed by a customer. To avoid enabling internet access for newly provisioned accounts, you must change the setting in Account Factory.

Delete the AWS Control Tower VPC

Outside of AWS Control Tower, every AWS customer has a default VPC, which you can view on the Amazon Virtual Private Cloud (Amazon VPC) console at https://console.aws.amazon.com/vpc/. You'll recognize the default VPC, because its name always includes the word (default) at the end of the name.

When you set up a AWS Control Tower landing zone, AWS Control Tower deletes your AWS default VPC and creates a new AWS Control Tower default VPC. The new VPC is associated with your AWS Control Tower management account. This topic refers to that new VPC as the Control Tower VPC.

When you view your AWS Control Tower VPC in the Amazon VPC console, you will not see the word (default) at the end of the name. If you have more than one VPC, you must use the assigned CIDR range to identify the correct AWS Control Tower VPC.

You can delete the AWS Control Tower VPC, but if you later need a VPC in AWS Control Tower, you must create it yourself.

To delete the AWS Control Tower VPC

1. Open the Amazon VPC console at https://console.aws.amazon.com/vpc/.
2. Search for VPC or select VPC from the Service Catalog options. You then see the VPC Dashboard.
3. From the menu on the left, choose Your VPCs. You then see a list of all your VPCs.
4. Identify the AWS Control Tower VPC by its CIDR range.
5. To delete the VPC, choose Actions and then choose Delete VPC.

An AWS (default) VPC already exists in every Region for the AWS Control Tower management account. To follow security best practices, if you choose to delete the AWS Control Tower VPC, it's
best also to delete the AWS default VPC associated with the management account from all AWS Regions. Therefore, to secure the management account, remove the default VPC from each Region, as well as removing the VPC created by Control Tower in your AWS Control Tower home region.

**Create an Account in AWS Control Tower Without a VPC**

If your end-user workloads do not require VPCs, you can use this method to set up end-user accounts that don't have VPCs created for them automatically.

From the AWS Control Tower dashboard, you can view and edit your network configurations settings. After you change the settings so that AWS Control Tower accounts are created without an associated VPC, all new accounts are created without a VPC until you change the settings again.

**To configure Account Factory for creating accounts without VPCs**

2. Choose **Account Factory** from the menu on the left.
3. You then see the Account Factory page with the **Network Configuration** section.
4. Note the current settings if you intend to restore them later.
5. Choose the **Edit** button in the **Network Configuration** section.
6. In the **Edit account factory network configuration** page, go to the **VPC Configuration options for new accounts** section.

   You can follow **Option 1** or **Option 2**, or both, to ensure that AWS Control Tower does not create a VPC when provisioning an account.

   a. **Option 1 – Removing subnets**

      - Turn off the **Internet-accessible subnet** toggle switch.
      - Set the **Maximum number of private subnets** value to 0.

   b. **Option 2 – Removing AWS Regions**

      - Clear every checkbox in the **Regions for VPC creation** column.

7. Choose **Save**.
Possible Errors

Be aware of these possible errors that could occur when you delete your AWS Control Tower VPC or reconfigure Account Factory to create accounts without VPCs.

- Your existing management account may have dependencies or resources in the AWS Control Tower VPC, which can cause a *deletion failure* error.
- If you leave the default CIDR in place when setting up to launch new accounts without a VPC, your request fails with an error that *the CIDR is not valid*.

Walkthrough: Set Up Security Groups in AWS Control Tower With AWS Firewall Manager

The video shows you how to use the AWS Firewall Manager service to provide improvements to your network security for AWS Control Tower. You can designate a security administrator account that's enabled to set up security groups. You will see how you can configure security policies and enforce security rules for your AWS Control Tower organizations, and how you can remediate non-compliant resources by applying policies automatically. You can view the security groups that are in effect for each account and resource (such as an Amazon EC2 instance) in your organization.

You can create your own firewall policies, or you can subscribe to rules from trusted vendors.

Set Up Security Groups With AWS Firewall Manager

This video (8:02) describes how to set up better network infrastructure security for your resources and workloads in AWS Control Tower. For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.

[Video Walkthrough of Firewall Setup in AWS Control Tower.](#)

For more information, see the documentation on how to set up AWS WAF.

Walkthrough: Decommission an AWS Control Tower Landing Zone

AWS Control Tower allows you to set up and govern secure multi-account AWS environments, known as landing zones. The process of cleaning up all of the resources allocated by AWS Control Tower is referred to as *decommissioning* a landing zone.
If you no longer want to use AWS Control Tower, the automated decommissioning tool cleans up the resources allocated by AWS Control Tower. To begin the automated decommissioning process, navigate to the **Landing Zone Settings** page, select the decommission tab, and choose **Decommission landing zone**.

For a list of actions performed during decommissioning, see [Overview of the decommissioning process](#).

⚠️ **Warning**

Manually deleting all of your AWS Control Tower resources is not the same as decommissioning. It will not allow you to set up a new landing zone.

Your data and your existing AWS Organizations are not changed by the decommissioning process, in the following ways.

- AWS Control Tower does not remove your data, it only removes parts of the landing zone that it created.
- After the decommissioning process is complete, a few resource artifacts remain, such as Amazon S3 buckets and Amazon CloudWatch Logs log groups. These resources must be deleted manually before you set up another landing zone, and to avoid possible costs associated with maintaining certain resources.
- You can’t use automated decommissioning to remove a landing zone that’s partially set up. If your landing zone setup process fails, you must resolve the failure state and set it up all the way to make automated decommissioning possible, or you must manually delete the resources individually.

*Decommissioning a landing zone is a process with significant consequences, and it cannot be undone.* The decommissioning actions taken by AWS Control Tower and the artifacts that remain after decommissioning are described in the following sections.

⚠️ **Important**

We strongly recommend that you perform this decommissioning process only if you intend to stop using your landing zone. It is not possible to re-create your existing landing zone after you’ve decommissioned it.
Overview of the decommissioning process

When you request decommissioning of your landing zone, AWS Control Tower does the following actions:

- Disables each detective control enabled in the landing zone. AWS Control Tower deletes the AWS CloudFormation resources supporting the control.
- Disables each preventive control by removing service control policies (SCPs) from AWS Organizations. If a policy is empty (which it should be after removing all SCPs managed by AWS Control Tower), AWS Control Tower detaches and deletes the policy entirely.
- Deletes all blueprints deployed as AWS CloudFormation StackSets.
- Deletes all blueprints deployed as CloudFormation Stacks across all Regions.
- For each provisioned account, AWS Control Tower does the following actions during the decommissioning process.
  - Deletes records of each account factory account.
  - Revokes the AWS Control Tower permissions to the account by removing the IAM role that AWS Control Tower created (unless additional policies have been added to it) and recreates the standard `OrganizationsFullAccessRole` IAM role.
  - Removes records of the account from AWS Service Catalog.
  - Removes the account factory product and portfolio from AWS Service Catalog.
  - Deletes the blueprints for the shared (Audit and Log Archive) accounts.
  - Revokes the AWS Control Tower permissions from the shared accounts by removing the IAM role that AWS Control Tower created (unless additional policies have been added to it) and recreates the `OrganizationsFullAccessRole` IAM role.
  - Deletes records related to the shared accounts.
  - Deletes records related to customer-created OUs.
  - Deletes internal records that identify the home Region.

**Note**

After decommissioning, you may wish to remove the Account Factory VPC blueprint (BP_ACCOUNT_FACTORY_VPC) to clean up the routes and NAT gateways, if your VPC was not empty.
Resources not removed during decommissioning

Decommissioning a landing zone does not fully reverse the AWS Control Tower setup process. Certain resources remain, which may be removed manually.

AWS Organizations

For customers without existing AWS Organizations organizations, AWS Control Tower sets up an organization with two organizational units (OUs), named Security and Sandbox. When you decommission your landing zone, the hierarchy of the organization is preserved, as follows:

- Organizational Units (OUs) you created from the AWS Control Tower console are not removed.
- The Security and Sandbox OUs are not removed.
- The organization is not deleted from AWS Organizations.
- No accounts in AWS Organizations (shared, provisioned, or management) are moved or removed.

AWS IAM Identity Center (SSO)

For customers without an existing IAM Identity Center directory, AWS Control Tower sets up IAM Identity Center and configures an initial directory. When you decommission your landing zone, AWS Control Tower makes no changes to IAM Identity Center. If needed, you can delete the IAM Identity Center information stored in your management account manually. In particular, these areas are unchanged by decommissioning:

- Users created with Account Factory are not removed.
- Groups created by AWS Control Tower setup are not removed.
- Permission sets created by AWS Control Tower are not removed.
- Associations between AWS accounts and IAM Identity Center permission sets are not removed.
- IAM Identity Center directories are not changed.

Amazon S3 Buckets

During setup, AWS Control Tower creates buckets in the logging account for logging and for logging access. When you decommission your landing zone, the following resources are not removed:

- Logging and logging access S3 buckets in the logging account are not removed.
- Contents of the logging and logging access buckets are not removed.

**Shared Accounts**

Two shared accounts (Audit and Log Archive) are created in the Security OU during AWS Control Tower setup. When you decommission your landing zone:

- Shared accounts that were created during AWS Control Tower setup are not closed.
- The `OrganizationAccountAccessRole` IAM role is recreated to align with standard AWS Organizations configuration.
- The `AWSControlTowerExecution` role is removed.

**Provisioned Accounts**

AWS Control Tower customers can use account factory to create new AWS accounts. When you decommission your landing zone:

- Provisioned accounts you created with Account Factory are not closed.
- Provisioned products in AWS Service Catalog are not removed. If you clean those up by terminating them, their accounts are moved into the **Root OU**.
- The VPC that AWS Control Tower created is not removed, and the associated AWS CloudFormation stack set (BP_ACCOUNT_FACTORY_VPC) is not removed.
- The `OrganizationAccountAccessRole` IAM role is recreated to align with standard AWS Organizations configuration.
- The `AWSControlTowerExecution` role is removed.

**CloudWatch Logs Log Group**

A CloudWatch Logs log group, `aws-controltower/CloudTrailLogs`, is created as part of the blueprint named `AWSControlTowerBP-BASELINE-CLOUDTRAIL-MANAGEMENT`. This log group is not removed. Instead, the blueprint is deleted and the resources are retained.

- This log group must be deleted manually before you set up another landing zone.
Note

Customers on landing zone 3.0 and later do not need to delete their individual enrolled account’s CloudTrail logs and CloudTrail logs roles, because these are created in the management account only, for the organization-level trail. Beginning with landing zone version 3.2, AWS Control Tower creates an EventBridge rule, called AWSControlTowerManagedRule. This rule is created in each member account, for all governed Regions. The rule is not deleted automatically during decommissioning, so you must delete it manually from the shared and member accounts for all governed Regions before you can set up a landing zone in a new Region.

Procedures for how to delete AWS Control Tower resources are given in Manage AWS Control Tower Resources.

Manage AWS Control Tower Resources

This document provides instructions for how to remove AWS Control Tower resources individually, as part of regular maintenance and administrative tasks. The procedures given in this chapter are intended only for removing individual resources, or a few resources, when needed. It not the same as decommissioning your landing zone.

Two types of tasks may require you to remove resources:

- To delete resources as you manage your landing zone in ordinary situations.
- To clean up resources that remain after automated decommissioning.

Warning

Manually removing resources will not allow you to set up a new landing zone. It is not the same as decommissioning. If you intend to decommission your AWS Control Tower landing zone, follow the instructions on Walkthrough: Decommission an AWS Control Tower Landing Zone before you take any actions described in this chapter. The instructions in this chapter can help you clean up resources that remain after automated decommissioning is complete. Even if you delete all of your landing zone resources manually, it is not the same as decommissioning the landing zone, and you may incur unexpected charges.
If you need to remove an account from AWS Control Tower, see the following sections to close an account:

- **Unmanage an account**
- **Close an account created in Account Factory**

**Do I need decommissioning instead of deleting?**

If you no longer intend to use AWS Control Tower for your enterprise, or if you require a major redeployment of your organizational resources, you may want to decommission the resources created when you initially set up your landing zone.

- After the decommissioning process is complete, a few resource artifacts remain, such as Amazon S3 buckets and Amazon CloudWatch Logs log groups.
- You must clean up the remaining resources in your accounts manually before you set up another landing zone, and to avoid the possibility of unexpected charges. For more information, see [Resources not removed during decommissioning](#).

**Warning**

We strongly recommend that you perform a decommissioning process *only if* you intend to stop using your landing zone. This process cannot be undone.

**About removing AWS Control Tower resources**

The individual procedures in this chapter guide you through manual methods of removing AWS Control Tower resources. These procedures can be followed when you need to delete a specific resource from your landing zone.

Before performing these procedures, unless it's otherwise indicated, you must be signed in to the AWS Management Console in the home Region for your landing zone, and you must be signed in as an IAM user or user in IAM Identity Center with administrative permissions for the management account that contains your landing zone.
Warning
These are destructive actions that can introduce governance drift into your AWS Control Tower setup. They cannot be undone.

Topics

- Delete SCPs
- Delete StackSets and Stacks
- Delete Amazon S3 Buckets in the Log Archive Account
- Remove an Account Factory Portfolio and Product
- Remove AWS Control Tower Roles and Policies
- AWS Control Tower resource help

Delete SCPs

AWS Control Tower uses service control policies (SCPs) for its controls. This procedure walks through how to delete the SCPs specifically related to AWS Control Tower.

To delete AWS Organizations SCPs

1. Open the Organizations console at https://console.aws.amazon.com/organizations/.
2. Open the Policies tab, and find the Service Control Policies (SCPs) that have the prefix aws-guardrails- and do the following for each SCP:
   a. Detach the SCP from the associated OU.
   b. Delete the SCP.

Delete StackSets and Stacks

AWS Control Tower uses StackSets and stacks to deploy AWS Config Rules related to controls in your landing zone. The following procedures walk through how to delete these specific resources.

To delete AWS CloudFormation StackSets

2. From the left navigation menu, choose **StackSets**.

3. For each StackSet with the prefix **AWSControlTower**, do the following. If you have many accounts in a StackSet, this can take some time.
   a. Choose the specific StackSet from the table in the dashboard. This opens the properties page for that StackSet.
   b. At the bottom of the page, in the **Stacks** table, make a record of the AWS account IDs for all the accounts in the table. Copy the list of all accounts.
   c. From **Actions**, choose **Delete stacks from StackSet**.
   d. On **Set deployment options**, from **Deployment locations**, choose **Deploy stacks in accounts**.
   e. In the text field, enter the AWS account IDs you made a record of in step 3.b, separated by commas. For example: `123456789012, 098765431098`, and so on.
   f. From **Specify regions**, choose **Add all**, leave the rest of the parameters on the page set to their defaults, and choose **Next**.
   g. On the **Review** page, review your choices, and then choose **Delete stacks**.
   h. On the **StackSet properties** page, you can begin this procedure again for your other StackSets.

4. The process is complete when the records in the **Stacks** table of the different **StackSets properties** pages are empty.

5. When the records in the **Stacks** table are empty, choose **Delete StackSet**.

**To delete AWS CloudFormation stacks**

2. From the **Stacks** dashboard, search for all of the stacks with the prefix **AWSControlTower**.
3. For each stack in the table, do the following:
   a. Choose the check box next to the name of the stack.
   b. From the **Actions** menu, choose **Delete Stack**.
   c. In the dialog box that opens, review the information to make sure it's accurate, and choose **Yes, Delete**.
Delete Amazon S3 Buckets in the Log Archive Account

The following procedures guide you through how to sign in to the log archive account as an IAM Identity Center user in the AWSControlTowerExecution group and then delete the Amazon S3 buckets in your log archive account.

To sign in to your log archive account with the right permissions

1. Open the Organizations console at https://console.aws.amazon.com/organizations/.
2. From the Accounts tab, find the Log archive account.
3. From the right pane that opens, make a record of the log archive account number.
4. From the navigation bar, choose your account name to open your account menu.
5. Choose Switch Role.
6. On the page that opens, provide the account number for the log archive account in Account.
7. For Role, enter AWSControlTowerExecution.
8. The Display Name populates with text.
9. Choose your favorite Color.
10. Choose Switch Role.

To delete Amazon S3 buckets

1. Open the Amazon S3 console at https://console.aws.amazon.com/s3/.
2. Search for bucket names that contain aws-controltower.
3. For each bucket in the table, do the following:
   a. Choose the check box for the bucket in the table.
   b. Choose Delete.
   c. In the dialog box that opens, review the information to make sure it's accurate, enter the name of the bucket to confirm, and then choose Confirm.

Remove an Account Factory Portfolio and Product

The following procedure guides you through how to sign in as an IAM Identity Center user in the AWSServiceCatalogAdmins group and then clean up your Account Factory portfolio and products.
To sign in to your management account with the right permissions

1. Go to your user portal URL at `directory-id.awsapps.com/start`
2. From AWS Account, find the Management account.
3. From `AWSServiceCatalogAdminFullAccess`, choose Management console to sign in to the AWS Management Console as this role.

To clean up Account Factory

2. From the left navigation menu, choose Portfolios list.
3. In the Local Portfolios table, search for a portfolio named AWS Control Tower Account Factory Portfolio.
4. Choose the name of that portfolio to go to its details page.
5. Expand the Constraints section of the page, and choose the radio button for the constraint with the product name AWS Control Tower Account Factory.
6. Choose REMOVE CONSTRAINTS.
7. In the dialog box that opens, review the information to make sure it's accurate, and then choose CONTINUE.
8. From the Products section of the page, choose the radio button for the product named AWS Control Tower Account Factory.
9. Choose REMOVE PRODUCT.
10. In the dialog box that opens, review the information to make sure it's accurate, and then choose CONTINUE.
11. Expand the Users, Groups, and Roles section of the page, and choose the check boxes for all the records in this table.
12. Choose REMOVE USERS, GROUP OR ROLE.
13. In the dialog box that opens, review the information to make sure it's accurate, and then choose CONTINUE.
14. From the left navigation menu, choose Portfolios list.
15. In the Local Portfolios table, search for a portfolio named AWS Control Tower Account Factory Portfolio.
16. Choose the radio button for that portfolio, and then choose DELETE PORTFOLIO.
17. In the dialog box that opens, review the information to make sure it's accurate, and then choose **CONTINUE**.

18. From the left navigation menu, choose **Product list**.

19. On the **Admin products** page, search for the product named **AWS Control Tower Account Factory**.

20. Choose the product to open the **Admin product details** page.

21. From **Actions**, choose **Delete product**.

22. In the dialog box that opens, review the information to make sure it's accurate, and then choose **CONTINUE**.

**Remove AWS Control Tower Roles and Policies**

These procedures walk you through how to clean up the roles and policies that AWS Control Tower created when your landing zone was set up, or later.

**To delete the IAM Identity Center AWSServiceCatalogEndUserAccess role**

1. Open the AWS IAM Identity Center console at [https://console.aws.amazon.com/singlesignon/](https://console.aws.amazon.com/singlesignon/).

2. Change your AWS Region to your home Region, which is the Region where you initially set up AWS Control Tower.

3. From the left navigation menu, choose **AWS accounts**.

4. Choose your management account link.

5. Choose the dropdown for **Permission sets**, select **AWSServiceCatalogEndUserAccess**, and then choose **Remove**.

6. Choose **AWS accounts** from the left panel.

7. Open the **Permission sets** tab.

8. Select **AWSServiceCatalogEndUserAccess** and delete it.

**To delete IAM roles**


2. From the left navigation menu, choose **Roles**.

3. From the table, search for roles with the name **AWSControlTower**.
4. For each role in the table, do the following:
   
   a. Choose the check box for the role.
   
   b. Choose **Delete role**.
   
   c. In the dialog box that opens, review the information to make sure it's accurate, and then choose **Yes, delete**.

**To delete IAM policies**

2. From the left navigation menu, choose **Policies**.
3. From the table, search for policies with the name **AWSControlTower**.
4. For each policy in the table, do the following:
   
   a. Choose the check box for the policy.
   
   b. Choose **Policy actions**, and **Delete** from the dropdown menu.
   
   c. In the dialog box that opens, review the information to make sure it's accurate, and then choose **Delete**.

**AWS Control Tower resource help**

If you encounter any issues that you can't resolve when you remove AWS Control Tower resources, contact **AWS Support**.

**How to decommission a landing zone**

To decommission your AWS Control Tower landing zone, follow the procedure given here.

1. Navigate to the **Landing Zone Settings** page in the AWS Control Tower console.
2. Choose **Decommission your landing zone** within the **Decommission your landing zone** section.
3. A dialog appears, explaining the action you are about to perform, with a required confirmation process. To confirm your intent to decommission, you must select every box and type the confirmation as requested.

⚠️ **Important**

*The decommissioning process cannot be undone.*

4. If you confirm your intent to decommission your landing zone, you are redirected to the AWS Control Tower home page while decommissioning is in progress. The process may require up to two hours.

5. When decommissioning has succeeded, you must delete remaining resources manually before setting up a new landing zone from the AWS Control Tower console. These remaining resources include some specific Amazon S3 buckets, organizations, and CloudWatch Logs log groups.

⚠️ **Note**

*These actions may have significant consequences for your billing and compliance activities. For example, failure to delete these resources can result in unexpected charges.*

For more information about how to delete resources manually, see [About removing AWS Control Tower resources](#).

6. If you intend to set up a new landing zone in a new AWS Region, follow this additional step. Enter the following command through the CLI:

```bash
aws organizations disable-aws-service-access --service-principal controltower.amazonaws.com
```

**Manual cleanup tasks required after decommissioning**

- You must specify different email addresses for the Log archive and Audit accounts if you create a new landing zone after decommissioning one, or follow the procedure for bringing your own existing Log archive or Audit accounts.
• The CloudWatch Logs log group, `aws-controltower/CloudTrailLogs`, must be deleted manually before you set up another landing zone.

• The two Amazon S3 buckets with reserved names for logs must be removed, or renamed, manually.

• You must delete, or rename, the existing **Security** and **Sandbox** organizational units manually.

---

**Note**

Before you can delete the AWS Control Tower **Security OU** organization, you must first delete the logging and audit accounts, but not the management account. To delete these accounts, you must [When to sign in as a root user](#) to the audit account and to the logging account and delete them individually.

---

• You may wish to delete the AWS IAM Identity Center (IAM Identity Center) configuration for AWS Control Tower manually, but you can proceed with the existing IAM Identity Center configuration.

• You may wish to remove the VPC created by AWS Control Tower, and remove the associated AWS CloudFormation stack set.

• Before you can set up a new landing zone in a new AWS Region, you must follow these additional steps.

• Enter the following command through the CLI:

```
aws organizations disable-aws-service-access --service-principal controltower.amazonaws.com
```

• Delete the remaining managed rule, called `AWSControlTowerManagedRule`, from the shared and member accounts for all governed Regions.

---

**Setup after decommissioning a landing zone**

After you decommission your landing zone, you cannot successfully execute setup again until manual cleanup is complete. Also, without manual cleanup of these remaining resources, you may incur unexpected billing charges. You must attend to these issues:

• The AWS Control Tower management account is part of the AWS Control Tower **Root OU**. Be sure that these IAM roles and IAM policies are removed from the management account:

  • Roles:
- AWSControlTowerAdmin
- AWSControlTowerCloudTrailRole
- AWSControlTowerStackSetRole

• Policies:
  - AWSControlTowerAdminPolicy
  - AWSControlTowerCloudTrailRolePolicy
  - AWSControlTowerStackSetRolePolicy

• You may wish to delete or update the existing IAM Identity Center configuration for AWS Control Tower before you set up a landing zone again, but it is not required that you delete it.

• You may wish to remove the VPC created by AWS Control Tower.

• Setup fails if the email addresses specified for the logging or audit accounts are associated with an existing AWS account. You may close the AWS accounts, or use different email addresses to set up a landing zone again. Alternatively, you may re-use these existing shared accounts, with the feature that allows you to bring your own logging and audit accounts. For more information, see Considerations for bringing existing security or logging accounts.

• Setup fails if Amazon S3 buckets with the following reserved names already exist in the logging account:
  • aws-controltower-logs-\{accountId\}-\{region\} (used for the logging bucket).
  • aws-controltower-s3-access-logs-\{accountId\}-\{region\} (used for the logging access bucket).

You must either rename or remove these buckets, or use a different account for the logging account.

• Setup fails if the management account has the existing log group, aws-controltower/CloudTrailLogs, in CloudWatch Logs. You must either rename or remove the log group.

Before you set up in a new AWS Region

If you intend to set up a new landing zone in a new AWS Region, follow these additional steps.

• Enter the following command through the CLI:
aws organizations disable-aws-service-access --service-principal controltower.amazonaws.com

- Delete the remaining managed rule, called AWSControlTowerManagedRule, from shared and member accounts for all governed Regions.

**Note**

You cannot set up a new landing zone in an organization with top-level OUs named either Security or Sandbox. You must rename or remove these OUs to set up a landing zone again.
Troubleshooting

If you encounter issues while using AWS Control Tower, you can use the following information to resolve them according to our best practices. If the issues you encounter are outside the scope of the following information, or if they persist after you've tried to resolve them, contact AWS Support.

Landing Zone Launch Failed

Common causes of landing zone launch failure:

- Lack of response to a confirmation email message.
- AWS CloudFormation StackSet failure.

**Confirmation email messages:** If your management account is less than an hour old, you may encounter issues when the additional accounts are created.

**Action to take**

If you encounter this issue, check your email. You might have been sent confirmation email that is awaiting response. Alternatively, we recommend that you wait an hour, and then try again. If the issue persists, contact AWS Support.

**Failed StackSets:** Another possible cause of landing zone launch failure is AWS CloudFormation StackSet failure. AWS Security Token Service (STS) regions must be enabled in the management account for all AWS Regions that AWS Control Tower is governing, so that the provisioning can be successful; otherwise, stack sets will fail to launch.

**Action to take**

Be sure to enable all of your required AWS Security Token Service (STS) endpoint regions before you launch AWS Control Tower.

To view a list of AWS Regions that AWS Control Tower supports, see [How AWS Regions Work With AWS Control Tower](#).
Landing zone not up to date error

If you have not updated your landing zone recently, you may receive an error when you try to regain access to AWS Control Tower. You may see an error message similar to this one:

Unable to access Control Tower

Your account has been inactive for too long. Due to inactivity, you must update your landing zone for access to AWS Control Tower.

However, your landing zone update may fail.

Steps to take

Sign in to the management account of your organization, and sign in as root user. Your IAM user or user in IAM Identity Center must have AWS Control Tower administrator permissions and be part of the AWSControlTowerAdmins group. Then try the update again.

New Account Provisioning Failed

If you encounter this issue, check for these common causes.

When you filled out the account provisioning form, you may have:

- specified tagOptions,
- enabled SNS notifications,
- enabled provisioned product notifications.

Try again to provision your account, without specifying any of those options. For more information, see Provision accounts with AWS Service Catalog Account Factory.

Other common causes for failure:

- If you created a provisioned product plan (to view resource changes), your account provisioning may remain in an In progress state indefinitely.
- Creation of a new account in Account Factory will fail while other AWS Control Tower configuration changes are in progress. For example, while a process is running to add a control to an OU, Account Factory will display an error message if you try to provision an account.
To check the status of a previous action in AWS Control Tower

- Navigate to AWS CloudFormation > StackSets
- Check each stack set related to AWS Control Tower (prefix: "AWSControlTower")
- Look for AWS CloudFormation StackSets operations that are still running.

If your account provisioning takes longer than one hour, it's best to terminate the provisioning process and try again.

Failed to Enroll an Existing Account

If you try once to enroll an existing AWS account and that enrollment fails, when you try a second time, the error message may tell you that the stack set exists. To continue, you must remove the provisioned product in Account Factory.

If the reason for the first enrollment failure was that you forgot to create the AWSControlTowerExecution role in the account in advance, the error message you'll receive correctly tells you to create the role. However, when you try to create the role, you are likely to receive another error message stating that AWS Control Tower could not create the role. This error occurs because the process has been partially completed.

In this case, you must take two recovery steps before you can proceed with enrolling your existing account. First, you must terminate the Account Factory provisioned product through the AWS Service Catalog console. Next, you must use the AWS Organizations console to manually move the account out of the OU and back to the root. After that is done, create the AWSControlTowerExecution role in the account, and then fill in the Enroll account form again.

Another possible cause of enrollment failure is that the account has existing AWS Config resources. In that case, see Enroll accounts that have existing AWS Config resources for instructions on how you can modify your existing resources.

Unable to Update an Account Factory Account

When an account is in an inconsistent state, it cannot be updated successfully from Account Factory or AWS Service Catalog.

Case 1: You may encounter an error message similar to this one:
AWS Control Tower could not baseline VPC in the managed account because of existing resource dependencies.

**Common cause:** AWS Control Tower always removes the AWS default VPC during initial provisioning. To have an AWS default VPC in an account, you must add it after account creation. AWS Control Tower has its own default VPC that replaces the AWS default VPC, unless you set up Account Factory the way the walkthrough shows you—so that AWS Control Tower doesn’t provision a VPC at all. Then the account has no VPC. You’d have to re-add the AWS default VPC if you want to use that one.

However, AWS Control Tower doesn’t support the AWS default VPC. Deploying one causes the account to enter a Tainted state. When it is in that state, you cannot update the account through AWS Service Catalog.

**Action to take:** You must delete the default VPC that you added, and then you will be able to update the account.

**Note**

The Tainted state causes a follow-on issue: An account that is not updated may prevent enabling controls on the OU of which it is a part.

**Case 2:** You may see an error message similar to this one:

AWS Control Tower detects that your enrolled account has been moved to a new organizational unit.

**Common cause:** You attempted to move an account from one registered OU to another, but old AWS Config rules remain. The account is in an inconsistent state.

**Action to take:**

**If the account move was intended:**

- Terminate the account in Service Catalog.
- Enroll it again.
- **Context/impact:** Deployed AWS Config rules don’t match the configuration dictated by the destination OU.
- AWS Config rules may remain from the previous OU, causing unintended spending.
• Attempts to re-enroll or update the account will fail due to resource naming conflicts.

If the account move was unintended:

• Return the account to its original OU.
• Update the account from Service Catalog.
• In the launch parameters, enter the OU that the account was originally in.
• Context/impact: If the account is not returned to its original OU, its state will be inconsistent with the controls dictated by the new OU it's in.
• Updating an account is not a valid remediation, because it does not delete the AWS Config rules associated with its previous OU.

Unable to Update Landing Zone

When an account is in a Closed or Suspended state, you may encounter an issue when you try to update your landing zone. You must delete the provisioned product on every closed account before you perform an update to the landing zone.

On the AWS Service Catalog provisioned product page, you may see an error message similar to this one:

AWSControlTowerExecution role can't be assumed on the account.

Common cause: You have suspended an account without deleting the provisioned product.

Action to take: If you see this error, you have two options:

1. Contact AWS Support and reopen the account, delete the provisioned product, then close the account again.
2. Remove the resources from the StackSets that have been orphaned because of the account closure. (This option is available only if the StackSets have instances in Current state that you are not removing.)

To remove the resources from the StackSets, do this for each closed account:

• Go into each of the AWS Control Tower StackSets and remove the StackInstances from every region, for the account that has been closed.
• **IMPORTANT:** Choose the **Retain Stack** option so the StackSet removes only the stack instances. StackSet can’t assume a role from the closed account, so it will fail if it tries to assume the AWSControlTowerExecution role, which leads to the error message you received.

### Failure Error that Mentions AWS Config

If AWS Config is enabled in any AWS Region supported by AWS Control Tower, you may receive an error message because a pre-check has failed. The message might not seem to explain the problem adequately, due to some underlying behavior of AWS Config.

**You may receive an error message, similar to one of these:**

- AWS Control Tower cannot create an AWS Config delivery channel because one already exists. To continue, delete the existing delivery channel and try again.

- AWS Control Tower cannot create an AWS Config configuration recorder because one already exists. To continue, delete the existing delivery channel and try again.

**Common cause:** When the AWS Config service is enabled on an AWS account, it creates a configuration recorder and delivery channel with a default naming. If you disable the AWS Config service through the console, it does not delete the configuration recorder or the delivery channel. You must delete them through the CLI, or modify them for AWS Control Tower use. If the AWS Config service is enabled in any one of the Regions supported by AWS Control Tower, it can result in this failure.

If the account has existing AWS Config resources, see [Enroll accounts that have existing AWS Config resources](#) for instructions on how you can modify your existing resources.

**Action to take:** Delete the configuration recorder and delivery channel in all supported regions. Disabling AWS Config is not enough, the configuration recorder and delivery channel must be deleted by means of the CLI. After you’ve deleted the configuration recorder and delivery channel from the CLI, you can try again to launch AWS Control Tower and enroll the account.

If you are in the process of deploying a provisioned product, you must delete the provisioned product before you retry. Otherwise, you may see an error message similar to this one:
• An error occurred (InvalidParametersException) when calling the
  ProvisionProduct operation: A stack named Stackname already exists.

In the message, Stackname specifies the name of the stack.

Here are some example AWS Config CLI commands you can use to determine the status of your
configuration recorder and delivery channel.

**View commands:**

• aws configservice describe-delivery-channels
• aws configservice describe-delivery-channel-status
• aws configservice describe-configuration-recorders
• The normal response is something like "name": "default"

**Delete commands:**

• aws configservice stop-configuration-recorder --configuration-recorder-name NAME-FROM-DESCRIBE-OUTPUT
• aws configservice delete-delivery-channel --delivery-channel-name NAME-FROM-DESCRIBE-OUTPUT
• aws configservice delete-configuration-recorder --configuration-recorder-name NAME-FROM-DESCRIBE-OUTPUT

For more information, see the AWS Config documentation

• [Managing the Configuration Recorder (AWS CLI)](https://aws.amazon.com/documentation/config/cli/
• [Managing the Delivery Channel](https://aws.amazon.com/documentation/config/cli/

**No Launch Paths Found Error**

When you're trying to create a new account, you may see an error message similar to this one:

No launch paths found for resource: prod-dpqqfywxxxx
This error message is generated by AWS Service Catalog, which is the integrated service that helps provision accounts in AWS Control Tower.

**Common Causes:**

- You may be logged in as root. AWS Control Tower does not support creating accounts when you're logged in as root user.
- Your IAM Identity Center user has not been added to the appropriate permission group. You may need to add your IAM Identity Center user to one of these permission groups: `AWSAccountFactory` (for end-user access) or `AWSServiceCatalogAdmins` (for admin access).
- If you are authenticated as an IAM user, you must add it to the AWS Service Catalog portfolio so that it has the correct permissions.
- This issue also occurs if you have the correct permissions, but AWS Control Tower drift is detected and a repair is necessary.

**Received an Insufficient Permissions Error**

It's possible that your account may not have the necessary permissions to perform certain work in certain AWS Organizations. If you encounter the following type of error, check all the permissions areas, such as IAM or IAM Identity Center permissions, to make sure your permission is not being denied from those places:

You have insufficient permissions to perform AWS Organizations API actions.

If you believe your work requires the action you're attempting, and you can't locate any relevant restriction, contact your system administrator or [AWS Support](https://aws.amazon.com/support/).

**Detective controls are not taking effect on accounts**

If you've recently expanded your AWS Control Tower deployment into a new AWS Region, newly-applied detective controls do not take effect on new accounts you create in any Region until the individual accounts within OUs governed by AWS Control Tower are updated. Existing detective controls on existing accounts are still in effect.

If you try to enable a detective control before updating your accounts, you may see an error message similar to this one:
AWS Control Tower can't enable the selected control on this OU. AWS Control Tower cannot apply the control on the OU ou-xxx-xxxxxxxx, because child accounts have dependencies that are missing. Update all child accounts under the OU, then try again.

**Action to take: Update accounts.**

To update your accounts from the AWS Control Tower console, see [When to update AWS Control Tower OUs and accounts](#).

To update multiple individual accounts programmatically, you can use the APIs from AWS Service Catalog and the AWS CLI to automate the updates. For more information about how to approach the update process, see this [Video Walkthrough](#). You can substitute the `UpdateProvisionedProduct` API for the `ProvisionProduct` API shown in the video.

If you have further difficulties with enabling detective controls on your accounts, contact [AWS Support](#).

**Rate exceeded error returned by the AWS Organizations API**

**Possible cause**

Your workload was running while AWS Control Tower was running a daily scan to check whether your SCPs have drifted.

**Steps to follow**

If you encounter an API throttling or rate exceeded error, try these steps:

- Run your workloads at a different time. (Refer to the AWS Control Tower SCP invariance scan schedule by Region to find out when AWS Control Tower runs its audit scans.)
- If you are calling the APIs directly through HTTP: Use the AWS SDK, which automatically retries failed actions
- Request a limit increase through [Service Quotas](#) and AWS Support

An example of troubleshooting instructions for API throttling in Elastic Beanstalk can be found here: [https://aws.amazon.com/premiumsupport/knowledge-center/elastic-beanstalk-api-throttling-errors/](https://aws.amazon.com/premiumsupport/knowledge-center/elastic-beanstalk-api-throttling-errors/)
Failure to move an Account Factory account directly from one AWS Control Tower landing zone to another AWS Control Tower landing zone

⚠️ **Warning**

This practice does not meet the prerequisite for eligible account enrollment, because eligible accounts must be part of the same overall AWS Organization, and each organization may have only one landing zone. If you have tried to do this action and you find yourself receiving multiple error messages, here is some information that might be helpful.

To move an account that you've provisioned through Account Factory into another landing zone that's managed by AWS Control Tower, under another management account, you must remove all of the IAM roles and the stacks associated with that account from the original OU. Remove these resources from every Region in which the account is deployed.

ℹ️ **Note**

The best way to remove the resources is to deprovision the account in its original OU before you try to move it.

If you don't remove the resources, enrollment into the new OU will fail, somewhat spectacularly. You may encounter one or more error messages, and you will keep receiving similar error messages until the remaining roles and stacks are removed from every Region in which the account was deployed.

Each time you receive an error message, you must remove the account from the new OU, delete the old resource that is the subject of the error message, and then attempt to move the account back into the new OU. This process of removing-and-deleting must be repeated for every remaining resource, for every Region in which the account was deployed, possibly 10 or 20 times. These repeated errors occur because the account was provisioned into an OU with an SCP that prevents IAM role deletion. You can make the recovery process shorter by deleting all the account's resources before you retry.
The examples below represent the types of failure messages you may receive if undeleted roles and stacks remain. You would most likely see one of these messages at a time, for each time you attempt to enroll the account, as long as old resources remain.

The values of the resource ID strings have been modified for the examples. Their values will not be the same in an error message you may receive. You may see a message similar to the following examples:

- AWS Control Tower cannot create the IAM role `aws-controltower-AdministratorExecutionRole` because the role already exists. To continue, delete the existing IAM role and try again.
- AWS Control Tower cannot create the IAM role `aws-controltower-ConfigRecorderRole` because the role already exists. To continue, delete the existing IAM role and try again.
- AWS Control Tower cannot create the IAM role `aws-controltower-ForwardSnsNotificationRole` because the role already exists. To continue, delete the existing IAM role and try again.

Or you may see an error message about a stack set failure, similar to this one:

```
"Error":"StackSetFailState",
"Cause":"StackSetOperation on AWSControlTowerBP-BASELINE-CLOUDWATCH with id 8aXXXXf5-e0XX-4XXa-bc4XX-dXXXee31 has reached SUCCEEDED state but has 1 NON-CURRENT stack instances; here is the summary :{
StackSet Id: AWSControlTowerBP-BASELINE-CLOUDWATCH:40XXXbf2-Xead-46a1-XXXa-eXXXecb2ee2,
Stack instance Id: arn:aws:cloudformation:eu-west-1:1X23456789XX:
  stack/StackSet-AWSControlTowerBP-BASELINE-CLOUDWATCH-4feXXXXXX-ecXX-XXc6-bXXX-4ae678/4feXXXXXX-ecX-4ae123458,
Status: OUTDATED,
Status Reason: ResourceLogicalId:ForwardSnsNotification,
ResourceType:AWS::Lambda::Function,
ResourceStatusReason:aws-controltower-NotificationForwarder already exists in stack arn:aws:cloudformation:eu-west-1:1X23456789XX:
  stack/StackSet-AWSControlTowerBP-BASELINE-CLOUDWATCH-4feXXXXXX-ecXX-XXc6-bXXX-4ae678/4feXXXXXX-ecX-4ae123458.
```
After all of the remaining resources are removed from the first OU, you’ll be able to invite, provision, or enroll the account into the new OU successfully.

**AWS Support**

If you want to move your existing member accounts into a different support plan, you can sign in to each account with root account credentials, [compare plans](#), and set the support level that you prefer.

We recommend that you update the MFA and account security contacts when you make changes to your support plan.
Related information

This topic lists common use cases and best practices for AWS Control Tower capabilities and additional enhancements. This topic also includes links to relevant blog posts, technical documentation, and related resources that can help you as you work with AWS Control Tower.

Tutorials and labs

- **AWS Control Tower lab** – These labs provide a high-level overview of common tasks related to AWS Control Tower.

- On the AWS Control Tower dashboard, choose **Get personalized guidance** if you have a use case in mind but you're not sure where to start.

- Try visiting a [curated list of YouTube videos](#) that explain more about how to use AWS Control Tower functionality.

Networking

Set up repeatable and manageable patterns for networks in AWS. Learn more about design, automation, and appliances that are commonly used by customers.

- **AWS Quick Start VPC Architecture** – This Quick Start guide provides a networking foundation based on AWS best practices for your AWS Cloud infrastructure. It builds an AWS Virtual Private Network environment with public and private subnets where you can launch AWS services and other resources.

- **Self-service VPCs in AWS Control Tower using AWS Service Catalog** – This blog post describes a way to set up Account Factory so you can provision accounts with customized VPCs.

- **Implementing Serverless Transit Network Orchestrator (STNO) in AWS Control Tower** – This blog post demonstrates how to automate network connectivity access across accounts. This blog is intended for AWS Control Tower administrators, or those responsible for managing networks within their AWS environment.

Security, identity, and logging

Extend your security posture, integrate with external or existing identity providers, and centralize logging systems.
Security

- Automating AWS Security Hub Alerts with AWS Control Tower lifecycle events – This blog post describes how to automate Security Hub enablement and configuration in an AWS Control Tower multi-account environment on existing and new accounts.
- Enabling AWS Identity and Access Management – This blog post describes how to enhance your organizational security visibility by enabling and centralizing IAM Access Analyzer findings.
- AWS Systems Manager Parameter Store provides secure, hierarchical storage for configuration data management and secrets management. You can use it to share configuration information in a secure location, for use by AWS Systems Manager and by AWS CloudFormation. For example, you can store a list of Regions in which you want to deploy conformance packs.

Identity

- Link Azure AD user identity into AWS accounts and applications for single sign-on – This blog post describes how to use Azure AD with IAM Identity Center and AWS Control Tower.
- Manage access to AWS centrally for Okta users with AWS IAM Identity Center – This blog post describes how to use Okta with IAM Identity Center and AWS Control Tower.

Logging

- AWS Centralized Logging Solution – This solutions post describes the Centralized Logging solution which enables organizations to collect, analyze, and display logs on AWS across multiple accounts and AWS Regions.

Deploying resources and managing workloads

Deploy and manage resources and workloads.

- Getting Started Library integration – This blog post describes Getting Started portfolios you can use.
- Continuous deployment of Cloud Custodian to AWS Control Tower

Working with existing organizations and accounts

Work with existing AWS organizations and accounts.
• **Enroll an account** – This user guide topic describes how to enroll an existing AWS account in AWS Control Tower.

• **Bring an account under AWS Control Tower** – This blog post describes how to deploy AWS Control Tower into your existing AWS organizations.

• **Extend AWS Control Tower governance using AWS Config conformance packs** – This blog post describes how to deploy AWS Config conformance packs to assist with bringing existing accounts and organizations into governance by AWS Control Tower.

• **How to Detect and Mitigate Guardrail Violation with AWS Control Tower** – This blog post describes how to add controls and how to subscribe to SNS notifications so that you can be notified by email of control compliance violations.

### Automation and integration

Automate account creation and integrate lifecycle events with AWS Control Tower.

• **Lifecycle events** – This blog post describes how to use lifecycle events with AWS Control Tower.

• **Automate account creation** – This blog post describes how to set up automated account creation in AWS Control Tower.

• **Amazon VPC flow log automation** – This blog post describes how to automate and centralize Amazon VPC Flow Logs in a multi-account environment.

• **Automate VPC tagging with AWS Control Tower lifecycle events** – This blog post describes how to automate resource tagging for VPCs, by means of lifecycle events in AWS Control Tower.

• **Automated account management** – This blog post describes how to automate account management tasks after your AWS Control Tower environment is set up.

### Migrating workloads

Use other AWS services with AWS Control Tower to assist in workload migration.

• **CloudEndure migration** – This blog post describes how to combine CloudEndure and other AWS services with AWS Control Tower to assist in workload migration.
Related AWS services

AWS Control Tower acts as an orchestration layer for AWS Organizations. Therefore, by means of the AWS Organizations console and APIs, you have access to over 20 other AWS services that work with AWS Control Tower. These additional services are not accessible directly through the AWS Control Tower console.

- For a full list of services available to AWS Control Tower by means of AWS Organizations, see AWS services that you can use with AWS Organizations.
- To enable multi-account capabilities for these related AWS services, you must enable trusted access. For more information, see Using AWS Organizations with other AWS services.

Note

Remember that AWS IAM Identity Center, AWS Config, and AWS CloudTrail are set up for you in AWS Control Tower and fully integrated. You do not need to modify your trusted access or delegated administration settings for these services.

- Some AWS services available through AWS Organizations can use delegated administration, including AWS Systems Manager and AWS Firewall Manager. For more information, see Configuring a Delegated Administrator, and Enabling a delegated administrator account for Firewall Manager. Also see this video, Set up security groups with AWS Firewall Manager.

AWS Marketplace solutions

Discover solutions from AWS Marketplace.

- AWS Control Tower Marketplace – AWS Marketplace offers a broad range of solutions for AWS Control Tower to help you integrate third-party software. These solutions help solve key infrastructure and operational use cases including identity management, security for a multi-account environment, centralized networking, operational intelligence, and security information and event management (SIEM).
AWS Control Tower release notes

The following sections show details about AWS Control Tower releases that require an update for an AWS Control Tower landing zone, as well as releases that are incorporated into the service automatically.

Features and releases are listed in reverse chronological order (most recent first) based on the date on which they were officially announced to the public. Because there can be a lag between when the feature or release is documented and when it is officially announced, the date listed for a feature or release here may differ slightly from the date in the Document history.

Features released in 2023

Features released in 2022

Features released in 2021

Features released in 2020

Features released in 2019

January 2023 - Present

Since January 2023, AWS Control Tower has released the following updates:

- [AWS Control Tower landing zone version 3.3](#)
- [Transition to new AWS Service Catalog External product type (phase 2)](#)
- [AWS Control Tower announces controls to assist digital sovereignty](#)
- [AWS Control Tower supports landing zone APIs](#)
- [AWS Control Tower supports tagging for enabled controls](#)
- [AWS Control Tower available in Asia Pacific (Melbourne) Region](#)
- [Transition to new AWS Service Catalog External product type (phase 1)](#)
- [New control API available](#)
- [AWS Control Tower adds additional controls](#)
- [New drift type reported: trusted access disabled](#)
- [Four additional AWS Regions](#)
AWS Control Tower available in Tel Aviv Region
AWS Control Tower launches 28 new proactive controls
AWS Control Tower deprecates two controls
AWS Control Tower landing zone version 3.2
AWS Control Tower handles accounts based on ID
Additional Security Hub detective controls available in the AWS Control Tower controls library
AWS Control Tower publishes control metadata tables
Terraform support for Account Factory Customization
AWS IAM Identity Center self-management available for landing zone
AWS Control Tower addresses mixed governance for OUs
Additional proactive controls available
Updated Amazon EC2 proactive controls
Seven additional AWS Regions available
Account Factory for Terraform (AFT) account customization request tracing
AWS Control Tower landing zone version 3.1
Proactive controls generally available

AWS Control Tower landing zone version 3.3

December 14, 2023

(Update required for AWS Control Tower landing zone to version 3.3. For information, see Update Your Landing Zone).

Updates to S3 bucket policy in the AWS Control Tower Audit account

We have modified the Amazon S3 Audit bucket policy that AWS Control Tower deploys in accounts, so that an **aws:SourceOrgID** condition must be met for any write permissions. With this release, AWS services have access to your resources only when the request originates from your organization or organizational unit (OU).

You can use the **aws:SourceOrgID** condition key and set the value to your **organization ID** in the condition element of your S3 bucket policy. This condition ensures that CloudTrail only can write logs on behalf of accounts within your organization to your S3 bucket; it prevents CloudTrail logs outside your organization from writing to your AWS Control Tower S3 bucket.
We made this change to remediate a potential security vulnerability, without affecting the functionality of your existing workloads. To view the updated policy, see Amazon S3 bucket policy in the audit account.

For more information about the new condition key, see the IAM documentation and the IAM blog post entitled "Use scalable controls for AWS services accessing your resources."

Updates to the policy in the AWS Config SNS topic

We added the new aws:SourceOrgID condition key to the policy for the AWS Config SNS topic. To view the updated policy, see The AWS Config SNS topic policy.

Updates to the landing zone Region Deny control

- Removed discovery-marketplace:. This action is covered by the aws-marketplace:* exemption.
- Added quicksight:DescribeAccountSubscription

Updated AWS CloudFormation template

We updated the AWS CloudFormation template for the stack named BASELINE-CLOUDTRAIL-MASTER so that is does not show drift when AWS KMS encryption is not used.

Transition to new AWS Service Catalog External product type (phase 2)

December 7, 2023

(No update required for AWS Control Tower landing zone.)

HashiCorp updated their Terraform licensing. As a result, AWS Service Catalog changed support for Terraform Open Source products and provisioned products to a new product type, called External.

To avoid disruption to existing workloads and AWS resources in your accounts, follow the AWS Control Tower transition steps in Transition to the AWS Service Catalog External product type by December 14, 2023.

AWS Control Tower announces controls to assist digital sovereignty

November 27, 2023

(No update required for AWS Control Tower landing zone.)
AWS Control Tower announces 65 new AWS-managed controls, to help you meet your digital sovereignty requirements. With this release, you can discover these controls under a new digital sovereignty group in the AWS Control Tower console. You can use these controls to help prevent actions and detect resource changes regarding data residency, granular access restriction, encryption, and resiliency capabilities. These controls are designed to make it simpler for you to address requirements at scale. For more information about digital sovereignty controls, see Controls that enhance digital sovereignty protection.

For example, you can choose to enable controls that help enforce your encryption and resiliency strategies, such as Require an AWS AppSync API cache to have encryption in transit enabled or Require an AWS Network Firewall to be deployed across multiple Availability Zones. You can also customize the AWS Control Tower Region deny control to apply regional restrictions that best fit your unique business needs.

This release brings well-enhanced AWS Control Tower Region deny capabilities. You can apply a new, parameterized Region deny control at the OU level, for increased granularity of governance, while maintaining additional Region governance at the landing zone level. This customizable Region deny control helps you to apply regional restrictions that best fit your unique business needs. For more information about the new, configurable Region deny control, see Region deny control applied to the OU.

As a new tool to the new Region deny enhancement, this release includes a new API, UpdateEnabledControl, which allows you to reset your enabled controls to the default settings. This API is especially helpful in use cases where you need to resolve drift quickly, or to guarantee programmatically that a control is not in a state of drift. For more information about the new API, see the AWS Control Tower API Reference.

New proactive controls

- CT.APIGATEWAY.PR.6: Require an Amazon API Gateway REST domain to use a security policy that specifies a minimum TLS protocol version of TLSv1.2
- CT.APPSYNC.PR.2: Require an AWS AppSync GraphQL API to be configured with private visibility
- CT.APPSYNC.PR.3: Require that an AWS AppSync GraphQL API is not authenticated with API keys
- CT.APPSYNC.PR.4: Require an AWS AppSync GraphQL API cache to have encryption in transit enabled.
- CT.APPSYNC.PR.5: Require an AWS AppSync GraphQL API cache to have encryption at rest enabled.
• CT.AUTOSCALING.PR.9: Require an Amazon EBS volume configured through an Amazon EC2 Auto Scaling launch configuration to encrypt data at rest
• CT.AUTOSCALING.PR.10: Require an Amazon EC2 Auto Scaling group to use only AWS Nitro instance types when overriding a launch template
• CT.AUTOSCALING.PR.11: Require only AWS Nitro instance types that support network traffic encryption between instances to be added to an Amazon EC2 Auto Scaling group, when overriding a launch template
• CT.DAX.PR.3: Require a DynamoDB Accelerator cluster to encrypt data in transit with Transport Layer Security (TLS)
• CT.DMS.PR.2: Require an AWS Database Migration Service (DMS) Endpoint to encrypt connections for source and target endpoints
• CT.EC2.PR.15: Require an Amazon EC2 instance to use an AWS Nitro instance type when creating from the AWS::EC2::LaunchTemplate resource type
• CT.EC2.PR.16: Require an Amazon EC2 instance to use an AWS Nitro instance type when created using the AWS::EC2::Instance resource type
• CT.EC2.PR.17: Require an Amazon EC2 dedicated host to use an AWS Nitro instance type
• CT.EC2.PR.18: Require an Amazon EC2 fleet to override only those launch templates with AWS Nitro instance types
• CT.EC2.PR.19: Require an Amazon EC2 instance to use a nitro instance type that supports encryption in-transit between instances when created using the AWS::EC2::Instance resource type
• CT.EC2.PR.20: Require an Amazon EC2 fleet to override only those launch templates with AWS Nitro instance types that support encryption in transit between instances
• CT.ELASTICACHE.PR.8: Require an Amazon ElastiCache replication group of later Redis versions to have RBAC authentication activated
• CT.MQ.PR.1: Require an Amazon MQ ActiveMQ broker to use active/standby deployment mode for high availability
• CT.MQ.PR.2: Require an Amazon MQ Rabbit MQ broker to use Multi-AZ cluster mode for high availability
• CT.MSK.PR.1: Require an Amazon Managed Streaming for Apache Kafka (MSK) cluster to enforce encryption in transit between cluster broker nodes
• CT.MSK.PR.2: Require an Amazon Managed Streaming for Apache Kafka (MSK) cluster to be configured with PublicAccess disabled
- CT.NETWORK-FIREWALL.PR.5: Require an AWS Network Firewall firewall to be deployed across multiple Availability Zones
- CT.RDS.PR.26: Require an Amazon RDS DB Proxy to require Transport Layer Security (TLS) connections
- CT.RDS.PR.27: Require an Amazon RDS DB cluster parameter group to require Transport Layer Security (TLS) connections for supported engine types
- CT.RDS.PR.28: Require an Amazon RDS DB parameter group to require Transport Layer Security (TLS) connections for supported engine types
- CT.RDS.PR.29: Require an Amazon RDS cluster not be configured to be publicly accessible by means of the 'PubliclyAccessible' property
- CT.RDS.PR.30: Require that an Amazon RDS database instance has encryption at rest configured to use a KMS key that you specify for supported engine types
- CT.S3.PR.12: Require an Amazon S3 access point to have a Block Public Access (BPA) configuration with all options set to true

**New preventive controls**

- CT.APPSYNC.PV.1 Require that an AWS AppSync GraphQL API is configured with private visibility
- CT.EC2.PV.1 Require an Amazon EBS snapshot to be created from an encrypted EC2 volume
- CT.EC2.PV.2 Require that an attached Amazon EBS volume is configured to encrypt data at rest
- CT.EC2.PV.3 Require that an Amazon EBS snapshot cannot be publicly restorable
- CT.EC2.PV.4 Require that Amazon EBS direct APIs are not called
- CT.EC2.PV.5 Disallow the use of Amazon EC2 VM import and export
- CT.EC2.PV.6 Disallow the use of deprecated Amazon EC2 RequestSpotFleet and RequestSpotInstances API actions
- CT.KMS.PV.1 Require an AWS KMS key policy to have a statement that limits creation of AWS KMS grants to AWS services
- CT.KMS.PV.2 Require that an AWS KMS asymmetric key with RSA key material used for encryption does not have a key length of 2048 bits
- CT.KMS.PV.3 Require that an AWS KMS key is configured with the bypass policy lockout safety check enabled
- CT.KMS.PV.4 Require that an AWS KMS customer-managed key (CMK) is configured with key material originating from AWS CloudHSM
The new detective controls that enhance your digital sovereignty governance posture are part of the AWS Security Hub Service-Managed Standard AWS Control Tower.

**New detective controls**

- SH.ACM.2: RSA certificates managed by ACM should use a key length of at least 2,048 bits
- SH.AppSync.5: AWS AppSync GraphQL APIs should not be authenticated with API keys
- SH.CloudTrail.6: Ensure the S3 bucket used to store CloudTrail logs is not publicly accessible
- SH.DMS.9: DMS endpoints should use SSL
- SH.DocumentDB.3: Amazon DocumentDB manual cluster snapshots should not be public
- SH.DynamoDB.3: DynamoDB Accelerator (DAX) clusters should be encrypted at rest
- SH.EC2.23: EC2 Transit Gateways should not automatically accept VPC attachment requests
- SH.EKS.1: EKS cluster endpoints should not be publicly accessible
- SH.ElastiCache.3: ElastiCache replication groups should have automatic failover enabled
- SH.ElastiCache.4: ElastiCache replication groups should have encryption-at-rest enabled
- SH.ElastiCache.5: ElastiCache replication groups should have encryption-in-transit enabled
- SH.ElastiCache.6: ElastiCache replication groups of earlier Redis versions should have Redis AUTH enabled
- SH.EventBridge.3: EventBridge custom event buses should have a resource-based policy attached
- SH.KMS.4: AWS KMS key rotation should be enabled
- SH.Lambda.3: Lambda functions should be in a VPC
- SH.MQ.5: ActiveMQ brokers should use active/standby deployment mode
- SH.MQ.6: RabbitMQ brokers should use cluster deployment mode
• SH.MSK.1: MSK clusters should be encrypted in transit among broker nodes
• SH.RDS.12: IAM authentication should be configured for RDS clusters
• SH.RDS.15: RDS DB clusters should be configured for multiple Availability Zones
• SH.S3.17: S3 buckets should be encrypted at rest with AWS KMS keys

For more information about controls added to the AWS Security Hub Service-Managed Standard AWS Control Tower see Controls that apply to Service-Managed Standard: AWS Control Tower in the AWS Security Hub documentation.

For a list of AWS Regions that do not support certain controls that are part of the AWS Security Hub Service-Managed Standard AWS Control Tower, see Unsupported Regions.

New configurable control for Region deny at the OU level

CT.MULTISERVICE.PV.1: This control accepts parameters to specify exempted Regions, IAM principals, and Actions that are allowed, at the OU level, rather than for the entire AWS Control Tower landing zone. It is a preventive control, implemented by Service control policy (SCP).

For more information, see Region deny control applied to the OU.

The UpdateEnabledControl API

This AWS Control Tower release adds the following API support for controls:

• The updated EnableControl API can configure controls that are configurable.
• The updated GetEnabledControl API shows the configured parameters on an enabled control.
• The new UpdateEnabledControl API can change parameters on an enabled control.

For more information, see the AWS Control Tower API Reference.

AWS Control Tower supports landing zone APIs

November 26, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower now supports landing zone configuration and launch using APIs. You can create, update, get, list, reset, and delete landing zones using APIs.
The following APIs enable you to set up and manage your landing zone programatically using AWS CloudFormation or the AWS CLI.

AWS Control Tower supports the following APIs for landing zones:

- **CreateLandingZone**–This API call creates a landing zone using a landing zone version and manifest file.
- **GetLandingZoneOperation**–This API call returns the status of a specified landing zone operation.
- **GetLandingZone**–This API call returns details about the specified landing zone, including the version, manifest file, and deployment status.
- **UpdateLandingZone**–This API call updates the landing zone version or manifest file.
- **ListLandingZone**–This API call returns one landing zone identifier (ARN) for a landing zone setup in the management account.
- **ResetLandingZone**–This API call resets the landing zone to the parameters specified at creation, which can repair drift.
- **DeleteLandingZone**–This API call decommissions the landing zone.

To get started with landing zone APIs, see the [Getting started with AWS Control Tower using APIs](#).

**AWS Control Tower supports tagging for enabled controls**

November 10, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower now supports resource tagging for enabled controls, from the AWS Control Tower console or by means of APIs. You can add, remove, or list tags for enabled controls.

With the release of the following APIs, you can configure tags for the controls you enable in AWS Control Tower. Tags help you manage, identify, organize, search for, and filter resources. You can create tags to categorize resources by purpose, owner, environment, or other criteria.

AWS Control Tower supports the following APIs for control tagging:

- **TagResource**–This API call adds tags to controls enabled in AWS Control Tower.
- **UntagResource**–This API call removes tags from controls enabled in AWS Control Tower.
- **ListTagsForResource**–This API call returns tags for controls enabled in AWS Control Tower.
AWS Control Tower control APIs are available in AWS Regions where AWS Control Tower is available. For a full list of AWS Regions in which AWS Control Tower is available, see the AWS Region Table. For a full list of AWS Control Tower APIs, see the API Reference.

AWS Control Tower available in Asia Pacific (Melbourne) Region

November 3, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower is available in Asia Pacific (Melbourne) Region.

If you are already using AWS Control Tower and you want to extend its governance features to this Region in your accounts, go to the Settings page in your AWS Control Tower dashboard, select the Region, and then update your landing zone. After a landing zone update, you must update all accounts that are governed by AWS Control Tower, to bring your accounts and OUs under governance in the new Region. For more information, see About Updates.

For a full list of Regions in which AWS Control Tower is available, see the AWS Region Table.

Transition to new AWS Service Catalog External product type (phase 1)

October 31, 2023

(No update required for AWS Control Tower landing zone.)

HashiCorp updated their Terraform licensing. As a result, AWS Service Catalog updated support for Terraform Open Source products and provisioned products to a new product type, called External.

AWS Control Tower does not support Account Factory customizations that rely on the AWS Service Catalog External product type. To avoid disruption to existing workloads and AWS resources in your accounts, follow the AWS Control Tower transition steps in this suggested order, by December 14, 2023:

1. Upgrade your existing Terraform Reference Engine for AWS Service Catalog to include support for both External and Terraform Open Source product types. For instructions about updating your Terraform Reference Engine, review the AWS Service Catalog GitHub Repository.

2. Go to AWS Service Catalog and duplicate any existing Terraform Open Source blueprints to use the new External product type. Do not terminate the existing Terraform Open Source blueprints.
3. Continue to use your existing Terraform Open Source blueprints to create or update accounts in AWS Control Tower.

New control API available

October 14, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower now supports an additional API that you can use to deploy and manage your AWS Control Tower controls, at scale. For more information about the AWS Control Tower control APIs, see the API Reference.

AWS Control Tower added a new control API.

- GetEnabledControl—The API call provides details about an enabled control.

We also updated this API:

ListEnabledControls—This API call lists the controls enabled by AWS Control Tower on the specified organizational unit and the accounts it contains. It now returns additional information in an EnabledControlSummary object.

With these APIs, you can perform several common operations programmatically. For example:

- Get a list of all the controls you've enabled from the AWS Control Tower controls library.
- For any enabled control, you can get information about the Regions in which the control is supported, the control's identifier (ARN), the drift status of the control, and the control's status summary.

AWS Control Tower control APIs are available in AWS Regions where AWS Control Tower is available. For a full list of AWS Regions in which AWS Control Tower is available, see the AWS Region Table. For a full list of AWS Control Tower APIs, see the API Reference.

AWS Control Tower adds additional controls

October 5, 2023

(No update required for AWS Control Tower landing zone.)
AWS Control Tower announces new proactive and detective controls.

Proactive controls in AWS Control Tower are implemented by means of AWS CloudFormation Hooks, which identify and block non-compliant resources before AWS CloudFormation provisions them. Proactive controls complement existing preventive and detective control capabilities in AWS Control Tower.

New proactive controls

- **[CT.ATHENA.PR.1]** Require an Amazon Athena workgroup to encrypt Athena query results at rest
- **[CT.ATHENA.PR.2]** Require an Amazon Athena workgroup to encrypt Athena query results at rest with an AWS Key Management Service (KMS) key
- **[CT.CLOUDTRAIL.PR.4]** Require an AWS CloudTrail Lake event data store to enable encryption at rest with an AWS KMS key
- **[CT.DAX.PR.2]** Require an Amazon DAX cluster to deploy nodes to at least three Availability Zones
- **[CT.EC2.PR.14]** Require an Amazon EBS volume configured through an Amazon EC2 launch template to encrypt data at rest
- **[CT.EKS.PR.2]** Require an Amazon EKS cluster to be configured with secret encryption using AWS Key Management Service (KMS) keys
- **[CT.ELASTICLOADBALANCING.PR.14]** Require a Network Load Balancer to have cross-zone load balancing activated
- **[CT.ELASTICLOADBALANCING.PR.15]** Require that an Elastic Load Balancing v2 target group does not explicitly disable cross-zone load balancing
- **[CT.EMR.PR.1]** Require that an Amazon EMR (EMR) security configuration is configured to encrypt data at rest in Amazon S3
- **[CT.EMR.PR.2]** Require that an Amazon EMR (EMR) security configuration is configured to encrypt data at rest in Amazon S3 with an AWS KMS key
- **[CT.EMR.PR.3]** Require that an Amazon EMR (EMR) security configuration is configured with EBS volume local disk encryption using an AWS KMS key
- **[CT.EMR.PR.4]** Require that an Amazon EMR (EMR) security configuration is configured to encrypt data in transit
- **[CT.GLUE.PR.1]** Require an AWS Glue job to have an associated security configuration
• **[CT.GLUE.PR.2]** Require an AWS Glue security configuration to encrypt data in Amazon S3 targets using AWS KMS keys

• **[CT.KMS.PR.2]** Require that an AWS KMS asymmetric key with RSA key material used for encryption has a key length greater than 2048 bits

• **[CT.KMS.PR.3]** Require an AWS KMS key policy to have a statement that limits creation of AWS KMS grants to AWS services

• **[CT.LAMBDA.PR.4]** Require an AWS Lambda layer permission to grant access to an AWS organization or specific AWS account

• **[CT.LAMBDA.PR.5]** Require an AWS Lambda function URL to use AWS IAM-based authentication

• **[CT.LAMBDA.PR.6]** Require an AWS Lambda function URL CORS policy to restrict access to specific origins

• **[CT.NEPTUNE.PR.4]** Require an Amazon Neptune DB cluster to enable Amazon CloudWatch log export for audit logs

• **[CT.NEPTUNE.PR.5]** Require an Amazon Neptune DB cluster to set a backup retention period greater than or equal to seven days

• **[CT.REDSHIFT.PR.9]** Require that an Amazon Redshift cluster parameter group is configured to use Secure Sockets Layer (SSL) for encryption of data in transit

These new proactive controls are available in commercial AWS Regions where AWS Control Tower is available. For more details about these controls, see [Proactive controls](#). For more details about where the controls are available, see [Control limitations](#).

**New detective controls**

New controls were added to the Security Hub Service-Managed Standard: AWS Control Tower. These controls help you enhance your governance posture. They act as part of the Security Hub Service-Managed Standard: AWS Control Tower, after you enable them on any specific OU.

• **[SH.Athena.1]** Athena workgroups should be encrypted at rest

• **[SH.Neptune.1]** Neptune DB clusters should be encrypted at rest

• **[SH.Neptune.2]** Neptune DB clusters should publish audit logs to CloudWatch Logs

• **[SH.Neptune.3]** Neptune DB cluster snapshots should not be public

• **[SH.Neptune.4]** Neptune DB clusters should have deletion protection enabled

• **[SH.Neptune.5]** Neptune DB clusters should have automated backups enabled
AWS Control Tower

The new AWS Security Hub detective controls are available in most AWS Regions where AWS Control Tower is available. For more details about these controls, see Controls that apply to Service-Managed Standard: AWS Control Tower. For more details about where the controls are available, see Control limitations.

New drift type reported: trusted access disabled

September 21, 2023

(No update required for AWS Control Tower landing zone.)

After you set up your AWS Control Tower landing zone, you can disable trusted access to AWS Control Tower in AWS Organizations. However, doing so causes drift.

With the trusted access disabled drift type, AWS Control Tower notifies you when this type of drift occurs, so you can repair your AWS Control Tower landing zone. For more information, see Types of governance drift.

Four additional AWS Regions

September 13, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower is now available in Asia Pacific (Hyderabad), Europe (Spain and Zurich), and Middle East (UAE).

If you are already using AWS Control Tower and you want to extend its governance features to this Region in your accounts, go to the Settings page in your AWS Control Tower dashboard, select the Region, and then update your landing zone. After a landing zone update, you must update all accounts that are governed by AWS Control Tower, to bring your accounts and OUs under governance in the new Region. For more information, see About Updates.

For a full list of Regions in which AWS Control Tower is available, see the AWS Region Table.
AWS Control Tower available in Tel Aviv Region

August 28, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower announces availability in the Israel (Tel Aviv) Region.

If you are already using AWS Control Tower and you want to extend its governance features to this Region in your accounts, go to the Settings page in your AWS Control Tower dashboard, select the Region, and then update your landing zone. After a landing zone update, you must update all accounts that are governed by AWS Control Tower, to bring your accounts and OUs under governance in the new Region. For more information, see About Updates.

For a full list of Regions in which AWS Control Tower is available, see the AWS Region Table.

AWS Control Tower launches 28 new proactive controls

July 24, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower is adding 28 new proactive controls, to assist you in managing your AWS environment.

Proactive controls enhance the governance capabilities of AWS Control Tower across your multi-account AWS environments, by blocking non-compliant resources before they are provisioned. These controls help manage AWS services such as Amazon CloudWatch, Amazon Neptune, Amazon ElastiCache, AWS Step Functions, and Amazon DocumentDB. The new controls help you meet control objectives such as establishing logging and monitoring, encrypting data at rest, or improving resiliency.

Here is a full list of the new controls:

- **[CT.APPSYNC.PR.1]** Require an AWS AppSync GraphQL API to have logging enabled
- **[CT.CLOUDWATCH.PR.1]** Require an Amazon CloudWatch alarm to have an action configured for the alarm state
- **[CT.CLOUDWATCH.PR.2]** Require an Amazon CloudWatch log group to be retained for at least one year
- **[CT.CLOUDWATCH.PR.3]** Require an Amazon CloudWatch log group to be encrypted at rest with an AWS KMS key
• [CT.CLOUDWATCH.PR.4] Require an Amazon CloudWatch alarm action to be activated
• [CT.DOCUMENTDB.PR.1] Require an Amazon DocumentDB cluster to be encrypted at rest
• [CT.DOCUMENTDB.PR.2] Require an Amazon DocumentDB cluster to have automatic backups enabled
• [CT.DYNAMODB.PR.2] Require an Amazon DynamoDB table to be encrypted at rest using AWS KMS keys
• [CT.EC2.PR.13] Require an Amazon EC2 instance to have detailed monitoring enabled
• [CT.EKS.PR.1] Require an Amazon EKS cluster to be configured with public access disabled to the cluster Kubernetes API server endpoint
• [CT.ELASTICACHE.PR.1] Require an Amazon ElastiCache for Redis cluster to have automatic backups activated
• [CT.ELASTICACHE.PR.2] Require an Amazon ElastiCache for Redis cluster to have automatic minor version upgrades activated
• [CT.ELASTICACHE.PR.3] Require an Amazon ElastiCache for Redis replication group to have automatic failover activated
• [CT.ELASTICACHE.PR.4] Require an Amazon ElastiCache replication group to have encryption at rest activated
• [CT.ELASTICACHE.PR.5] Require an Amazon ElastiCache for Redis replication group to have encryption in transit activated
• [CT.ELASTICACHE.PR.6] Require an Amazon ElastiCache cache cluster to use a custom subnet group
• [CT.ELASTICACHE.PR.7] Require an Amazon ElastiCache replication group of earlier Redis versions to have Redis AUTH authentication
• [CT.ELASTICBEANSTALK.PR.3] Require an AWS Elastic Beanstalk environment to have a logging configuration
• [CT.LAMBDA.PR.3] Require an AWS Lambda function to be in a customer-managed Amazon Virtual Private Cloud (VPC)
• [CT.NEPTUNE.PR.1] Require an Amazon Neptune DB cluster to have AWS Identity and Access Management (IAM) database authentication
• [CT.NEPTUNE.PR.2] Require an Amazon Neptune DB cluster to have deletion protection enabled
• [CT.NEPTUNE.PR.3] Require an Amazon Neptune DB cluster to have storage encryption enabled
• [CT.REDSHIFT.PR.8] Require an Amazon Redshift cluster to be encrypted
• [CT.S3.PR.9] Require that an Amazon S3 bucket has S3 Object Lock activated
• **[CT.S3.PR.10]** Require an Amazon S3 bucket to have server-side encryption configured using AWS KMS keys

• **[CT.S3.PR.11]** Require an Amazon S3 bucket to have versioning enabled

• **[CT.STEPFUNCTIONS.PR.1]** Require an AWS Step Functions state machine to have logging activated

• **[CT.STEPFUNCTIONS.PR.2]** Require an AWS Step Functions state machine to have AWS X-Ray tracing activated

Proactive controls in AWS Control Tower are implemented by means of AWS CloudFormation Hooks, which identify and block non-compliant resources before AWS CloudFormation provisions them. Proactive controls complement existing preventive and detective control capabilities in AWS Control Tower.

These new proactive controls are available in all AWS Regions where AWS Control Tower is available. For more details about these controls, see [Proactive controls](#).

**AWS Control Tower deprecates two controls**

**July 18, 2023**

(No update required for AWS Control Tower landing zone.)

AWS Control Tower conducts regular reviews of its security controls to ensure that they are up to date and are still considered best practices. The following two controls have been deprecated, effective July 18, 2023, and they will be removed from the controls library, effective August 18, 2023. You can no longer enable these controls on any organizational units. You can choose to deactivate these controls before the removal date.

• **[SH.S3.4]** S3 buckets should have server-side encryption enabled

• **[CT.S3.PR.7]** Require an Amazon S3 bucket to have server-side encryption configured

**Reason for deprecation**

As of January 2023, Amazon S3 configured default encryption on all new and existing unencrypted buckets to apply server-side encryption with S3 managed keys (SSE-S3) as the base level of encryption for new objects uploaded to these buckets. No changes have been made to the default encryption configuration for an existing bucket that already had SSE-S3 or server-side encryption with AWS Key Management Service (AWS KMS) keys (SSE-KMS) configured.
AWS Control Tower landing zone version 3.2

June 16, 2023

(Update required for AWS Control Tower landing zone to version 3.2. For information, see Update Your Landing Zone).

AWS Control Tower landing zone version 3.2 brings the controls that are part of the AWS Security Hub Service-Managed Standard: AWS Control Tower to general availability. It introduces the ability to view the drift status of controls that are part of this standard in the AWS Control Tower console.

This update includes a new service-linked role (SLR), called the AWSServiceRoleForAWSControlTower. This role assists AWS Control Tower by creating an EventBridge Managed Rule, called the AWSControlTowerManagedRule in each member account. This managed rule collects AWS Security Hub Finding events, from with AWS Control Tower can determine control drift.

This rule is the first managed rule to be created by AWS Control Tower. The rule is not deployed by a stack; it is deployed directly from the EventBridge APIs. You can view the rule in the EventBridge console, or by means of the EventBridge APIs. If the managed-by field is populated, it will show the AWS Control Tower service principal.

Previously, AWS Control Tower assumed the AWSControlTowerExecution role to perform operations in member accounts. This new role and rule are better aligned with the best practices principle of allowing least privilege when performing operations in a multi-account AWS environment. The new role provides scoped-down permissions that specifically allow: creating the managed rule in member accounts, maintaining the managed rule, publishing security notifications through SNS, and verifying drift. For more information, see AWSServiceRoleForAWSControlTower.

The landing zone 3.2 update also includes a new StackSet resource in the management account, BP_BASELINE_SERVICE_LINKED_ROLE, which initially deploys the service-linked role.

When reporting Security Hub control drift (in landing zone 3.2 and later), AWS Control Tower receives a daily status update from Security Hub. Although controls are active in every governed Region, AWS Control Tower sends the AWS Security Hub Finding events to the AWS Control Tower home Region only. For more information, see Security Hub control drift reporting.

Update to the Region Deny control
This landing zone version also includes an update to the Region Deny control.

Global services and APIs added

- AWS Billing and Cost Management (billing:*)
- AWS CloudTrail (cloudtrail:LookupEvents) to allow visibility of global events in member accounts.
- AWS Consolidated Billing (consolidatedbilling:*)
- AWS Management Console Mobile Application (consoleapp:*)
- AWS Free Tier (freetier:*)
- AWS Invoicing (invoicing:*)
- AWS IQ (iq:*)
- AWS User Notifications (notifications:*)
- AWS User Notifications Contacts (notifications-contacts:*)
- Amazon Payments (payments:*)
- AWS Tax Settings (tax:*)

Global services and APIs removed

- Removed s3:GetAccountPublic because it is not a valid action.
- Removed s3:PutAccountPublic because it is not a valid action.

AWS Control Tower handles accounts based on ID

June 14, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower now creates and manages accounts that you create in Account Factory by tracking the AWS account ID, rather than the account's email address.

When provisioning an account, the account requester always must have the CreateAccount and the DescribeCreateAccountStatus permissions. This permission set is part of the Admin role, and it is given automatically when a requester assumes the Admin role. If you delegate permission to provision accounts, you may need to add these permissions directly for the account requestors.
Additional Security Hub detective controls available in the AWS Control Tower controls library

June 12, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower has added ten new AWS Security Hub detective controls to the AWS Control Tower controls library. These new controls target services such as API Gateway, AWS CodeBuild, Amazon Elastic Compute Cloud (EC2), Amazon Elastic Load Balancer, Amazon Redshift, Amazon SageMaker, and AWS WAF. These new controls help you enhance your governance posture by meeting control objectives, such as Establish logging and monitoring, Limit network access, and Encrypt data at rest.

These controls act as part of the Security Hub Service-Managed Standard: AWS Control Tower, after you enable them on any specific OU.

• [SH.Account.1] Security contact information should be provided for an AWS account
• [SH.APIGateway.8] API Gateway routes should specify an authorization type
• [SH.APIGateway.9] Access logging should be configured for API Gateway V2 Stages
• [SH.CodeBuild.3] CodeBuild S3 logs should be encrypted
• [SH.EC2.25] EC2 launch templates should not assign public IPs to network interfaces
• [SH.ELB.1] Application Load Balancer should be configured to redirect all HTTP requests to HTTPS
• [SH.Redshift.10] Redshift clusters should be encrypted at rest
• [SH.SageMaker.2] SageMaker notebook instances should be launched in a custom VPC
• [SH.SageMaker.3] Users should not have root access to SageMaker notebook instances
• [SH.WAF.10] A WAFV2 web ACL should have at least one rule or rule group

The new AWS Security Hub detective controls are available in all AWS Regions where AWS Control Tower is available. For more details about these controls, see Controls that apply to Service-Managed Standard: AWS Control Tower.

AWS Control Tower publishes control metadata tables

June 7, 2023
AWS Control Tower now provides full tables of control metadata as part of the published documentation. When working with the control APIs, you can look up each control's API controlIdentifier, which is a unique ARN associated with each AWS Region. The tables include the frameworks and control objectives that each control covers. Previously, this information was available in the console only.

The tables also include the metadata for Security Hub controls that are part of the AWS Security Hub Service-Managed Standard:AWS Control Tower. For full details, see Tables of control metadata.

For an abbreviated list of control identifiers, and some usage examples, see Resource identifiers for APIs and controls.

Terraform support for Account Factory Customization

June 6, 2023

AWS Control Tower offers single-Region support for Terraform through Account Factory Customization (AFC). Starting with this release, you can use AWS Control Tower and Service Catalog together, to define AFC account blueprints, in Terraform open source. You can customize your new and existing AWS accounts, before you provision resources in AWS Control Tower. By default, this feature enables you to deploy and update accounts, with Terraform, in your AWS Control Tower home Region.

An account blueprint describes the specific resources and configurations that are required when an AWS account is provisioned. You can use the blueprint as a template to create multiple AWS accounts at scale.

To get started, use the Terraform Reference Engine on GitHub. The Reference Engine configures the code and infrastructure required for the Terraform open source engine to work with Service Catalog. This one-time setup process takes a few minutes. After that, you can define your custom account requirements in Terraform, and then deploy your accounts with the well-defined AWS Control Tower account factory workflow. Customers who prefer to work with Terraform can utilize AWS Control Tower account customization at scale with AFC, and gain immediate access to each account after it is provisioned.
To learn how to create these customizations, see Creating Products and Getting started with Terraform open source in the Service Catalog documentation. This feature is available in all AWS Regions where AWS Control Tower is available.

AWS IAM Identity Center self-management available for landing zone

June 6, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower now supports an optional choice of identity provider for an AWS Control Tower landing zone, which you can configure during setup or update. By default, the landing zone is opted-in to using AWS IAM Identity Center, in alignment with best-practices guidance defined in Organizing Your AWS Environment Using Multiple Accounts. You now have three alternatives:

- You can accept the default and allow AWS Control Tower to set up and manage AWS IAM Identity Center for you.
- You can choose to self-manage AWS IAM Identity Center, to reflect your specific business requirements.
- You can optionally bring and self-manage a third-party identity provider, by connecting it through IAM Identity Center, if needed. You should use identity provider optionality if your regulatory environment requires you to use a specific provider, or if you operate in AWS Regions where AWS IAM Identity Center is not available.

For more information, see IAM Identity Center guidance.

Selection of identity providers at the account level is not supported. This feature applies only for the landing zone as a whole. AWS Control Tower identity provider optionality is available in all AWS Regions where AWS Control Tower is available.

AWS Control Tower addresses mixed governance for OUs

June 1, 2023

(No update required for AWS Control Tower landing zone.)

With this release, AWS Control Tower prevents controls from deploying to an organizational unit (OU), if that OU is in a state of mixed governance. Mixed governance occurs in an OU if accounts are not updated after AWS Control Tower extends governance to a new AWS Region, or removes
governance. This release helps you keep the member accounts of that OU in uniform compliance. For more information, see Avoid mixed governance when configuring Regions.

Additional proactive controls available

May 19, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower is adding 28 new proactive controls to assist you in governing your multi-account environment and meeting specific control objectives, such as data encryption at rest, or limiting network access. Proactive controls are implemented with AWS CloudFormation hooks that check your resources before they are provisioned. The new controls can help govern AWS services such as Amazon OpenSearch Service, Amazon EC2 Auto Scaling, Amazon SageMaker, Amazon API Gateway, and Amazon Relational Database Service (RDS).

Proactive controls are supported in all commercial AWS Regions where AWS Control Tower is available.

Amazon OpenSearch Service

- [CT.OPENSEARCH.PR.1] Require an Elasticsearch domain to encrypt data at rest
- [CT.OPENSEARCH.PR.2] Require an Elasticsearch domain to be created in a user-specified Amazon VPC
- [CT.OPENSEARCH.PR.3] Require an Elasticsearch domain to encrypt data sent between nodes
- [CT.OPENSEARCH.PR.4] Require an Elasticsearch domain to send error logs to Amazon CloudWatch Logs
- [CT.OPENSEARCH.PR.5] Require an Elasticsearch domain to send audit logs to Amazon CloudWatch Logs
- [CT.OPENSEARCH.PR.6] Require an Elasticsearch domain to have zone awareness and at least three data nodes
- [CT.OPENSEARCH.PR.7] Require an Elasticsearch domain to have at least three dedicated master nodes
- [CT.OPENSEARCH.PR.8] Require an Elasticsearch Service domain to use TLSv1.2
- [CT.OPENSEARCH.PR.9] Require an Amazon OpenSearch Service domain to encrypt data at rest
- [CT.OPENSEARCH.PR.10] Require an Amazon OpenSearch Service domain to be created in a user-specified Amazon VPC
• [CT.OPENSEARCH.PR.11] Require an Amazon OpenSearch Service domain to encrypt data sent between nodes

• [CT.OPENSEARCH.PR.12] Require an Amazon OpenSearch Service domain to send error logs to Amazon CloudWatch Logs

• [CT.OPENSEARCH.PR.13] Require an Amazon OpenSearch Service domain to send audit logs to Amazon CloudWatch Logs

• [CT.OPENSEARCH.PR.14] Require an Amazon OpenSearch Service domain to have zone awareness and at least three data nodes

• [CT.OPENSEARCH.PR.15] Require an Amazon OpenSearch Service domain to use fine-grained access control

• [CT.OPENSEARCH.PR.16] Require an Amazon OpenSearch Service domain to use TLSv1.2

Amazon EC2 Auto Scaling

• [CT.AUTOSCALING.PR.1] Require an Amazon EC2 Auto Scaling group to have multiple Availability Zones

• [CT.AUTOSCALING.PR.2] Require an Amazon EC2 Auto Scaling group launch configuration to configure Amazon EC2 instances for IMDSv2

• [CT.AUTOSCALING.PR.3] Require an Amazon EC2 Auto Scaling launch configuration to have a single-hop metadata response limit

• [CT.AUTOSCALING.PR.4] Require an Amazon EC2 Auto Scaling group associated with an Amazon Elastic Load Balancing (ELB) to have ELB health checks activated

• [CT.AUTOSCALING.PR.5] Require that an Amazon EC2 Auto Scaling group launch configuration does not have Amazon EC2 instances with public IP addresses

• [CT.AUTOSCALING.PR.6] Require any Amazon EC2 Auto Scaling groups to use multiple instance types

• [CT.AUTOSCALING.PR.8] Require an Amazon EC2 Auto Scaling group to have EC2 launch templates configured

Amazon SageMaker

• [CT.SAGEMAKER.PR.1] Require an Amazon SageMaker notebook instance to prevent direct internet access
AWS Control Tower

- [CT.SAGEMAKER.PR.2] Require Amazon SageMaker notebook instances to be deployed within a custom Amazon VPC
- [CT.SAGEMAKER.PR.3] Require Amazon SageMaker notebook instances to have root access disallowed

Amazon API Gateway

- [CT.APIGATEWAY.PR.5] Require Amazon API Gateway V2 Websocket and HTTP routes to specify an authorization type

Amazon Relational Database Service (RDS)

- [CT.RDS.PR.25] Require an Amazon RDS database cluster to have logging configured

For more information, see Proactive controls.

Updated Amazon EC2 proactive controls

May 2, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower has updated two proactive controls: CT.EC2.PR.3 and CT.EC2.PR.4.

For the updated CT.EC2.PR.3 control, any AWS CloudFormation deployment that references a prefix list for a security group resource is blocked from deployment, unless it is for port 80 or 443.

For the updated CT.EC2.PR.4 control, any AWS CloudFormation deployment that references a prefix list for a security group resource is blocked if the port is 3389, 20, 23, 110, 143, 3306, 8080, 1433, 9200, 9300, 25, 445, 135, 21, 1434, 4333, 5432, 5500, 5601, 22, 3000, 5000, 8088, 8888.

Seven additional AWS Regions available

April 19, 2023

(No update required for AWS Control Tower landing zone.)

AWS Control Tower is now available in seven additional AWS Regions: Northern California (San Francisco), Asia Pacific (Hong Kong, Jakarta, and Osaka), Europe (Milan), Middle East (Bahrain), and
Africa (Cape Town). These additional Regions for AWS Control Tower, called opt-in Regions, are not active by default, except the US West (N. California) Region, which is active by default.

Some controls in AWS Control Tower do not operate in some of these additional AWS Regions where AWS Control Tower is available, because those Regions do not support the required underlying functionality. For details, see Control limitations.

Among these new Regions, CfCT is not available in Asia Pacific (Jakarta and Osaka). Availability in other AWS Regions is unchanged.

For more information about how AWS Control Tower manages the limitations of Regions and controls, see Considerations for activating AWS opt-in Regions.

The VPCe endpoints required by AFT are not available in the Middle East (Bahrain) Region. Customers deploying AFT in this Region are required to deploy with parameter aft_vpc_endpoints=false. For more information, see the parameter in the README file.

AWS Control Tower VPCs have two Availability Zones in the US West (N. California) Region, us-west-1, due to a limitation in Amazon EC2. In the US West (N. California), six subnets are divided across two Availability Zones. For more information, see Overview of AWS Control Tower and VPCs.

AWS Control Tower added new permissions to AWSControlTowerServiceRolePolicy that allow AWS Control Tower to make calls to the EnableRegion, ListRegions, and GetRegionOptStatus APIs implemented by the AWS Account Management service, to make these additional AWS Regions available for your shared accounts in the landing zone (Management account, Log archive account, Audit account) and your OU member accounts. For more information, see Managed policies for AWS Control Tower.

**Account Factory for Terraform (AFT) account customization request tracing**

**February 16, 2023**

AFT supports account customization request tracing. Every time you submit an account customization request, AFT generates a unique tracing token that passes through an AFT customization AWS Step Functions state machine, which logs the token as part of its execution. You can use Amazon CloudWatch Logs insights queries to search timestamp ranges and retrieve the request token. As a result, you can see payloads that accompany the token, so you can trace your account customization request throughout the entire AFT workflow. For more information
about AFT, see Overview of AWS Control Tower Account Factory for Terraform. For information about CloudWatch Logs and Step Functions, see the following:

- What is Amazon CloudWatch Logs? in the Amazon CloudWatch Logs User Guide
- What is AWS Step Functions? in the AWS Step Functions Developer Guide

AWS Control Tower landing zone version 3.1

February 9, 2023

(Update required for AWS Control Tower landing zone to version 3.1. For information, see Update Your Landing Zone)

AWS Control Tower landing zone version 3.1 includes the following updates:

- With this release, AWS Control Tower deactivates unnecessary access logging for your access logging bucket, which is the Amazon S3 bucket where access logs are stored in the Log Archive account, while continuing to enable server access logging for S3 buckets. This release also includes updates to the Region Deny control that allow additional actions for global services, such as AWS Support Plans and AWS Artifact.

- Deactivation of server access logging for the AWS Control Tower access logging bucket causes Security Hub to create a finding for the Log Archive account's access logging bucket, due to an AWS Security Hub rule, [S3.9] S3 bucket server access logging should be enabled. In alignment with Security Hub, we recommend that you suppress this particular finding, as stated in the Security Hub description of this rule. For additional information, see information about suppressed findings.

- Access logging for the (regular) logging bucket in the Log Archive account is unchanged in version 3.1. In alignment with best practices, access events for that bucket are recorded as log entries in the access logging bucket. For more information about access logging, see Logging requests using server access logging in the Amazon S3 documentation.

- We made an update of the Region Deny control. This update allows actions by more global services. For details of this SCP, see Deny access to AWS based on the requested AWS Region and Controls that enhance data residency protection.

Global services added:
- AWS Account Management (account: *)
- AWS Activate (activate: *)
- AWS Artifact (artifact:*)
- AWS Billing Conductor (billingconductor:*)
- AWS Compute Optimizer (compute-optimizer:*)
- AWS Data Pipeline (datapipeline:GetAccountLimits)
- AWS Device Farm (devicefarm:*)
- AWS Marketplace (discovery-marketplace:*)
- Amazon ECR (ecr-public:*)
- AWS License Manager (license-manager:ListReceivedLicenses)
- AWS Lightsail (lightsail:Get*)
- AWS Resource Explorer (resource-explorer-2:*)
- Amazon S3 (s3:CreateMultiRegionAccessPoint, s3:GetBucketPolicyStatus, s3:PutMultiRegionAccessPointPolicy)
- AWS Savings Plans (savingsplans:*)
- IAM Identity Center (sso:*)
- AWS Support App (supportapp:*)
- AWS Support Plans (supportplans:*)
- AWS Sustainability (sustainability:*)
- AWS Resource Groups Tagging API (tag:GetResources)
- AWS Marketplace Vendor Insights (vendor-insights:ListEntitledSecurityProfiles)

**Proactive controls generally available**

**January 24, 2023**

(No update required for AWS Control Tower landing zone.)

Optional proactive controls, previously announced in preview status, are now generally available. These controls are referred to as proactive because they check your resources – before the resources are deployed – to determine whether the new resources comply with the controls that are activated in your environment. For more information, see [Comprehensive controls assist in AWS resource provisioning and management](#).
January - December 2022

In 2022, AWS Control Tower released the following updates:

- Concurrent account operations
- Account Factory Customization (AFC)
- Comprehensive controls assist in AWS resource provisioning and management
- Compliance status viewable for all AWS Config rules
- API for controls and a new AWS CloudFormation resource
- CfCT supports stack set deletion
- Customized log retention
- Role drift repair available
- AWS Control Tower landing zone version 3.0
- The Organization page combines views of OUs and accounts
- Easier enroll and update for individual member accounts
- AFT supports automated customization for shared AWS Control Tower accounts
- Concurrent operations for all optional controls
- Existing security and logging accounts
- AWS Control Tower landing zone version 2.9
- AWS Control Tower landing zone version 2.8

**Concurrent account operations**

**December 16, 2022**

(No update required for AWS Control Tower landing zone.)

AWS Control Tower now supports concurrent actions in account factory. You can create, update, or enroll up to five (5) accounts at a time. Submit up to five actions in succession and view the completion status of each request, while your accounts finish building in the background. For example, you no longer must wait for each process to complete before you update another account, or before you re-register an entire organizational unit (OU).
Account Factory Customization (AFC)

November 28, 2022

(No update required for AWS Control Tower landing zone.)

Account factory customization allows you to customize new and existing accounts from within the AWS Control Tower console. These new customization capabilities give you the flexibility to define account blueprints, which are AWS CloudFormation templates contained in a specialized Service Catalog product. Blueprints provision fully customized resources and configurations. You also may choose use pre-defined blueprints, built and managed by AWS partners, that help you customize accounts for specific use cases.

Previously, AWS Control Tower account factory did not support account customization in the console. With this update of account factory, you can pre-define account requirements and implement them as part of a well-defined workflow. You can apply blueprints to create new accounts, to enroll other AWS accounts into AWS Control Tower, and to update existing AWS Control Tower accounts.

When you provision, enroll, or update an account in account factory, you will select the blueprint to deploy. Those resources specified in the blueprint are provisioned in your account. When your account has finished building, all of the custom configurations are available for use immediately.

To get started with customizing accounts, you can define the resources for your intended use case in a Service Catalog product. You also can select partner-managed solutions from the AWS Getting Started Library. For more information, see Customize accounts with Account Factory Customization (AFC).

Comprehensive controls assist in AWS resource provisioning and management

November 28, 2022

(No update required for AWS Control Tower landing zone.)

AWS Control Tower now supports comprehensive controls management, including new, optional proactive controls, implemented through AWS CloudFormation hooks. These controls are referred to as proactive because they check your resources – before the resources are deployed – to determine whether the new resources will comply with the controls that are activated in your environment.
Over 130 new proactive controls assist you with meeting specific policy objectives for your AWS Control Tower environment; with meeting requirements of industry-standard compliance frameworks; and with governing AWS Control Tower interactions across more than twenty other AWS services.

The AWS Control Tower controls library classifies these controls according to the associated AWS services and resources. For more details, see Proactive controls.

With this release, AWS Control Tower also is integrated with AWS Security Hub, by means of the new Security Hub Service-Managed Standard: AWS Control Tower, which supports the AWS Foundational Security Best Practices (FSBP) standard. You can view over 160 Security Hub controls alongside AWS Control Tower controls in the console, and you can obtain an Security Hub security score for your AWS Control Tower environment. For more information, see Security Hub standard.

**Compliance status viewable for all AWS Config rules**

**November 18, 2022**

(No update required for AWS Control Tower landing zone.)

AWS Control Tower now displays the compliance status of all AWS Config rules deployed into organizational units registered with AWS Control Tower. You can view the compliance status of all AWS Config rules that affect your accounts in AWS Control Tower, enrolled or unenrolled, without navigating outside of the AWS Control Tower console. Customers can choose to set up Config rules, called detective controls, in AWS Control Tower, or to set them up directly through the AWS Config service. The rules deployed by AWS Config are shown, along with the rules deployed by AWS Control Tower.

Previously, AWS Config rules deployed through the AWS Config service were not visible in the AWS Control Tower console. Customers had to navigate to the AWS Config service to identify non-compliant AWS Config rules. Now you can identify any non-compliant AWS Config rule within the AWS Control Tower console. To view the compliance status of all your Config rules, navigate to the Account details page in the AWS Control Tower console. You will see a list showing the compliance status of controls managed by AWS Control Tower and Config rules deployed outside of AWS Control Tower.

**API for controls and a new AWS CloudFormation resource**

**September 1, 2022**
AWS Control Tower now supports programmatic management of controls, also known as *guardrails*, through a set of API calls. A new AWS CloudFormation resource supports the API functionality for controls. For more details, see [Automate tasks in AWS Control Tower](#) and [Creating AWS Control Tower resources with AWS CloudFormation](#).

These APIs allow you to enable, disable, and view the application status of controls in the AWS Control Tower library. The APIs include support for AWS CloudFormation, so you can manage AWS resources as infrastructure-as-code (IaC). AWS Control Tower provides optional preventive and detective controls that express your policy intentions regarding an entire organizational unit (OU), and every AWS account within the OU. These rules remain in effect as you create new accounts or make changes to existing accounts.

### APIs included in this release

- **EnableControl**– This API call activates a control. It starts an asynchronous operation that creates AWS resources on the specified organizational unit and the accounts it contains.

- **DisableControl**– This API call turns off a control. It starts an asynchronous operation that deletes AWS resources on the specified organizational unit and the accounts it contains.

- **GetControlOperation**– Returns the status of a particular **EnableControl** or **DisableControl** operation.

- **ListEnabledControls**– Lists the controls enabled by AWS Control Tower on the specified organizational unit and the accounts it contains.

To view a list of control names for optional controls, see [Resource identifiers for APIs and controls](#), in the *AWS Control Tower User Guide*.

### CfCT supports stack set deletion

**August 26, 2022**

(No update required for AWS Control Tower landing zone.)

Customizations for AWS Control Tower (CfCT) now supports stack set deletion, by setting a parameter in the `manifest.yaml` file. For more information, see [Delete a stack set](#).
Important

When you initially set the value of `enable_stack_set_deletion` to `true`, the next time you invoke CfCT, **ALL** resources that begin with the prefix `CustomControlTower-`, which have the associated key tag `Key:AWS_Solutions, Value: CustomControlTowerStackSet`, and which are not declared in the manifest file, are staged for deletion.

Customized log retention

August 15, 2022

(Update required for AWS Control Tower landing zone. For information, see **Update Your Landing Zone**)

AWS Control Tower now provides the ability to customize the retention policy for Amazon S3 buckets that store your AWS Control Tower CloudTrail logs. You can customize your Amazon S3 log retention policy, in increments of days or years, up to a maximum of 15 years.

If you choose not customize your log retention, the default settings are 1 year for standard account logging, and 10 years for access logging.

This feature is available for existing customers through AWS Control Tower when you update or repair your landing zone, and for new customers through the AWS Control Tower setup process.

Role drift repair available

August 11, 2022

(No update required for AWS Control Tower landing zone.)

AWS Control Tower now supports repair for role drift. You can restore a required role without a full repair of your landing zone. If this type of drift repair is needed, the console error page provides steps for restoring the role, so that your landing zone is once again available.

AWS Control Tower landing zone version 3.0

July 29, 2022
AWS Control Tower landing zone version 3.0 includes the following updates:

- The option to choose organization-level AWS CloudTrail trails, or to opt out of CloudTrail trails managed by AWS Control Tower.
- Two new detective controls to determine whether AWS CloudTrail is logging activity in your accounts.
- The option to aggregate AWS Config information about global resources in your home Region only.
- An update to the Region deny control.
- An update to the managed policy, `AWSControlTowerServiceRolePolicy`.
- We no longer create the IAM role `aws-controltower-CloudWatchLogsRole` and the CloudWatch log group `aws-controltower/CloudTrailLogs` in each enrolled account. Previously, we created these in each account for its account trail. With organization trails, we only create one in the management account.

The following sections provide more details about each new capability.

**Organization-level CloudTrail trails in AWS Control Tower**

With landing zone version 3.0, AWS Control Tower now supports organization-level AWS CloudTrail trails.

When you update your AWS Control Tower landing zone to version 3.0, you have the option to select organization-level AWS CloudTrail trails as your logging preference, or to opt out of CloudTrail trails that are managed by AWS Control Tower. When you update to version 3.0, AWS Control Tower deletes *the existing account-level trails for enrolled accounts* after a 24-hour waiting period. AWS Control Tower does not delete account-level trails for unenrolled accounts. Going forward from landing zone 3.0, AWS Control Tower no longer will support account-level trails that AWS manages. Instead, AWS Control Tower creates an organization-level trail, which is active or inactive, according to your selection.
**Note**

After you update to version 3.0 or later, you do not have the option to continue with account-level CloudTrail trails managed by AWS Control Tower.

No logging data is lost from your aggregated account logs, because the logs remain in the existing Amazon S3 bucket where they are stored. Only the trails are deleted, not the existing logs. If you select the option to add organization-level trails, AWS Control Tower opens a new path to a new folder within your Amazon S3 bucket and continues sending logging information to that location. If you choose to opt out of trails managed by AWS Control Tower, your existing logs remain in the bucket, unchanged.

**Path naming conventions for log storage**

- Account trail logs are stored with a path of this form: `/org id/AWSLogs/…`
- Organization trail logs are stored with a path of this form: `/org id/AWSLogs/org id/…`

The path that AWS Control Tower creates for your organization-level CloudTrail trails is different than the default path for a manually-created organization-level trail, which would have the following form:

- `/AWSLogs/org id/…`

For more information about CloudTrail path naming, see [Finding your CloudTrail log files](#).

**Tip**

If you plan to create and manage your own account-level trails, we recommend that you create the new trails before you complete the update to AWS Control Tower landing zone version 3.0, to start logging right away.

At any time, you may choose to create new account-level or organization-level CloudTrail trails and manage them on your own. The option to choose organization-level CloudTrail trails managed by AWS Control Tower is available during any landing zone update to version 3.0 or later. You can opt into and opt out of organization-level trails, whenever you update your landing zone.
If your logs are managed by a third-party service, be sure to give the new path name to your service.

Note
For landing zones at version 3.0 or later, account-level AWS CloudTrail trails are not supported by AWS Control Tower. You can create and maintain your own account-level trails at any time, or you can opt into organization-level trails managed by AWS Control Tower.

Record AWS Config resources in the home Region only

In landing zone version 3.0, AWS Control Tower has updated the baseline configuration for AWS Config so that it records global resources in the home Region only. After you update to version 3.0, resource recording for global resources is enabled only in your home Region.

This configuration is considered a best practice. It is recommended by AWS Security Hub and AWS Config, and it creates cost savings by reducing the number of configuration items created when global resources are created, modified, or deleted. Previously, each time a global resources was created, updated, or deleted, whether by a customer or by an AWS service, a configuration item was created for each item in each governed Region.

Two new detective controls for AWS CloudTrail logging

As part of the change to organization-level AWS CloudTrail trails, AWS Control Tower is introducing two new detective controls that check whether CloudTrail is enabled. The first control has Mandatory guidance, and it is enabled on the Security OU during setup or landing zone updates of 3.0 and later. The second control has Strongly recommended guidance, and it is optionally applied to any OUs other than the Security OU, which already has the mandatory control protection enforced.

Mandatory control: Detect whether shared accounts under the Security organizational unit have AWS CloudTrail or CloudTrail Lake enabled

Strongly recommended control: Detect whether an account has AWS CloudTrail or CloudTrail Lake enabled

For more information about the new controls, see the The AWS Control Tower controls library.
An update to the Region deny control

We updated the NotAction list in the Region deny control to include actions by some additional services, listed below:

```
"chatbot:*",
"s3:GetAccountPublic",
"s3:DeleteMultiRegionAccessPoint",
"s3:DescribeMultiRegionAccessPointOperation",
"s3:GetMultiRegionAccessPoint",
"s3:GetMultiRegionAccessPointPolicy",
"s3:GetMultiRegionAccessPointPolicyStatus",
"s3:ListMultiRegionAccessPoints",
"s3:GetStorageLensConfiguration",
"s3:GetStorageLensDashboard",
"s3:ListStorageLensConfigurations"
"s3:GetAccountPublicAccessBlock",
"s3:PutAccountPublic",
"s3:PutAccountPublicAccessBlock",
```

Video Walkthrough

This video (3:07) describes how to update your existing AWS Control Tower landing zone to version 3. For better viewing, select the icon at the lower right corner of the video to enlarge it to full screen. Captioning is available.

Video Walkthrough of Update an Existing AWS Control Tower Landing Zone to Landing Zone 3.

The Organization page combines views of OUs and accounts

July 18, 2022

(No update required for AWS Control Tower landing zone)

The new Organization page in AWS Control Tower shows a hierarchical view of all organizational units (OUs) and accounts. It combines the information from the OUs and Accounts pages, which existed previously.

On the new page, you can see relationships between parent OUs and their nested OUs and accounts. You can take action on groupings of resources. You can configure the page view. For
example, you can expand or collapse the hierarchical view, filter the view to see accounts or OUs only, choose to view only your enrolled accounts and registered OUs, or you can view groups of related resources. It is easier to ensure that your entire organization is updated properly.

**Easier enroll and update for individual member accounts**

*May 31, 2022*

(No update required for AWS Control Tower landing zone)

AWS Control Tower now gives you an improved capability to update and enroll member accounts individually. Each account shows when it is available for an update, so you can more easily ensure that your member accounts include the latest configuration. You can update your landing zone, remediate account drift, or enroll an account into a registered OU, in a few streamlined steps.

When you update an account, there’s no need to include an account’s entire organizational unit (OU) in each update action. As a result, the time required to update an individual account is greatly reduced.

You can enroll accounts into AWS Control Tower OUs with more help from the AWS Control Tower console. Existing accounts that you enroll in AWS Control Tower must still meet the account prerequisites, and you must add the AWSControlTowerExecution role. Then, you can choose any registered OU and enroll the account into it by selecting the Enroll button.

We’ve separated the Enroll account functionality from the Create account workflow in account factory, to create more distinction between these similar processes, and help avoid setup errors when you’re entering account information.

**AFT supports automated customization for shared AWS Control Tower accounts**

*May 27, 2022*

(No update required for AWS Control Tower landing zone)

Account Factory for Terraform (AFT) now can programmatically customize and update any of your accounts that are managed by AWS Control Tower, including the management account, audit account, and log archive account, along with your enrolled accounts. You can centralize your account customization and update management, while protecting the security of your account configurations, because you scope the role that carries out the work.
The existing **AWSAFTExecution** role now deploys customizations in all accounts. You can set up IAM permissions with boundaries that limit the access of the **AWSAFTExecution** role according to your business and security requirements. You also can programmatically delegate the approved customization permissions in that role, for trusted users. As a best practice, we recommend that you restrict permissions to those that are necessary to deploy the required customizations.

AFT now creates the new **AWSAFTService** role to deploy AFT resources in all managed accounts, including the shared accounts and management account. Resources formerly were deployed by the **AWSAFTExecution** role.

The AWS Control Tower shared and management accounts are not provisioned through account factory, so they do not have corresponding provisioned products in AWS Service Catalog. Therefore, you are not able to update the shared and management accounts in Service Catalog.

**Concurrent operations for all optional controls**

**May 18, 2022**

(No update required for AWS Control Tower landing zone)

AWS Control Tower now supports concurrent operations for preventive controls, as well as for detective controls.

With this new feature, any optional control now can be applied or removed concurrently, thereby improving the ease of use and performance for all optional controls. You can enable multiple optional controls without waiting for individual control operations to complete. The only restricted times are when AWS Control Tower is in the process of landing zone setup, or while extending governance to a new organization.

**Supported functionality for preventive controls:**

- Apply and remove different preventive controls on the same OU.
- Apply and remove different preventive controls on different OUs, concurrently.
- Apply and remove the same preventive control on multiple OUs, concurrently.
- You can apply and remove any preventive and detective controls, concurrently.

You can experience these control concurrency improvements in all released versions of AWS Control Tower.
When you apply preventive controls to nested OUs, the preventive controls affect all accounts and OUs nested under the target OU, even if those accounts and OUs are not registered with AWS Control Tower. Preventive controls are implemented using Service Control Policies (SCPs), which are part of AWS Organizations. Detective controls are implemented using AWS Config rules. Guardrails remain in effect as you create new accounts or make changes to your existing accounts, and AWS Control Tower provides a summary report of how each account conforms to your enabled policies. For a full list of available controls, see the The AWS Control Tower controls library.

**Existing security and logging accounts**

May 16, 2022

(Available during initial setup.)

AWS Control Tower now provides the option for you to specify an existing AWS account as an AWS Control Tower security or logging account, during the initial landing zone setup process. This option eliminates the need for AWS Control Tower to create new, shared accounts. The security account, which is called the **Audit** account by default, is a restricted account that gives your security and compliance teams access to all accounts in your landing zone. The logging account, which is called the **Log Archive** account by default, works as a repository. It stores logs of API activities and resource configurations from all accounts in your landing zone.

By bringing your existing security and logging accounts, it is easier to extend AWS Control Tower governance into your existing organizations, or to move to AWS Control Tower from an alternate landing zone. The option for you to use existing accounts is displayed during the initial landing zone setup. It includes checks during the setup process, which ensure successful deployment. AWS Control Tower implements the necessary roles and controls on your existing accounts. It does not remove or merge any existing resources or data that exists in these accounts.

Limitation: If you plan to bring existing AWS accounts into AWS Control Tower as audit and log archive accounts, and if those accounts have existing AWS Config resources, you must delete the existing AWS Config resources before you can enroll the accounts into AWS Control Tower.

**AWS Control Tower landing zone version 2.9**

April 22, 2022

(Update required for AWS Control Tower landing zone to version 2.9. For information, see Update Your Landing Zone)
AWS Control Tower landing zone version 2.9 updates the notification forwarder Lambda to use the Python version 3.9 runtime. This update addresses the deprecation of Python version 3.6, which is planned for July of 2022. For the latest information, see the Python deprecation page.

AWS Control Tower landing zone version 2.8

February 10, 2022

(Update required for AWS Control Tower landing zone to version 2.8. For information, see Update Your Landing Zone)

AWS Control Tower landing zone version 2.8 adds functionality that aligns with recent updates to the AWS Foundational Security Best Practices.

In this release:

- Access logging is configured for the access log bucket in the Log Archive account, to keep track of access to the existing S3 access log bucket.
- Support for lifecycle policy is added. The access log for the existing S3 access log bucket is set to a default retention time of 10 years.
- Additionally, this release updates AWS Control Tower to use the AWS Service Linked Role (SLR) provided by AWS Config, in all managed accounts (not including the management account), so that you can set up and manage Config rules to match AWS Config best practices. Customers who do not upgrade will continue to use their existing role.
- This release streamlines the AWS Control Tower KMS configuration process for encrypting Config data, and it improves the related status messaging in CloudTrail.
- The release includes an update to the Region deny control, to allow for the route53-application-recovery feature in us-west-2.
- Update: On February 15, 2022, we removed the dead letter queue for AWS Lambda functions.

Additional details:

- If you decommission your landing zone, AWS Control Tower does not remove the AWS Config service-linked role.
- If you deprovision an Account Factory account, AWS Control Tower does not remove the AWS Config service-linked role.
To update your landing zone to 2.8, navigate to the Landing zone settings page, select the 2.8 version, and then choose Update. After you update your landing zone, you must update all accounts that are governed by AWS Control Tower, as given in Configuration update management in AWS Control Tower.

January - December 2021

In 2021, AWS Control Tower released the following updates:

- Region deny capabilities
- Data residency features
- AWS Control Tower introduces Terraform account provisioning and customization
- New lifecycle event available
- AWS Control Tower enables nested OUs
- Detective control concurrency
- Two new Regions available
- Region deselection
- AWS Control Tower works with AWS Key Management Systems
- Controls renamed, functionality unchanged
- AWS Control Tower scans SCPs daily to check for drift
- Customized names for OUs and accounts
- AWS Control Tower landing zone version 2.7
- Three new AWS Regions available
- Govern selected Regions only
- AWS Control Tower now extends governance to existing OUs in your AWS organizations
- AWS Control Tower provides bulk account updates

Region deny capabilities

November 30, 2021

(No update required for AWS Control Tower landing zone.)
AWS Control Tower now provides Region deny capabilities, which assist you in limiting access to AWS services and operations for enrolled accounts in your AWS Control Tower environment. The Region deny feature complements existing Region selection and Region deselection features in AWS Control Tower. Together, these features help you to address compliance and regulatory concerns, while balancing the costs associated with expanding into additional Regions.

For example, AWS customers in Germany can deny access to AWS services in Regions outside of the Frankfurt Region. You can select restricted Regions during the AWS Control Tower set up process, or in the **Landing zone settings** page. The Region deny feature is available when you update your AWS Control Tower landing zone version. Select AWS services are exempt from Region deny capabilities. To learn more, see [Configure the Region deny control](#).

**Data residency features**

**November 30, 2021**

(No update required for AWS Control Tower landing zone)

AWS Control Tower now offers purpose-built controls to help ensure that any customer data you upload to AWS services is located only in the AWS Regions that you specify. You can select the AWS Region or Regions in which your customer data is stored and processed. For a full list of AWS Regions where AWS Control Tower is available, see the [AWS Region Table](#).

For granular control, you can apply additional controls, such as **Disallow Amazon Virtual Private Network (VPN) connections**, or **Disallow internet access for an Amazon VPC instance**. You can view the compliance status of the controls in the AWS Control Tower console. For a full list of available controls, see [The AWS Control Tower controls library](#).

**AWS Control Tower introduces Terraform account provisioning and customization**

**November 29, 2021**

(Optional update for AWS Control Tower landing zone)

You can now employ Terraform to provision and update customized accounts through AWS Control Tower, with [AWS Control Tower Account Factory for Terraform (AFT)](#).

AFT provides a single Terraform infrastructure as code (IaC) pipeline, which provisions accounts managed by AWS Control Tower. Customizations during provisioning help to meet your business and security policies, before you give the accounts to end-users.
The AFT automated account creation pipeline monitors until account provisioning is complete, and then it continues, triggering additional Terraform modules that enhance the account with any necessary customizations. As an additional part of the customization process, you can configure the pipeline to install your own custom Terraform modules, and you can choose to add any of the AFT Feature Options, which are provided by AWS for common customizations.

Get started with AWS Control Tower Account Factory for Terraform by following the steps provided in the AWS Control Tower User Guide, Deploy AWS Control Tower Account Factory for Terraform (AFT), and by downloading AFT for your Terraform instance. AFT supports Terraform Cloud, Terraform Enterprise, and Terraform Open Source distributions.

New lifecycle event available

November 18, 2021

(No update required for AWS Control Tower landing zone)

The PrecheckOrganizationalUnit event logs whether any resources block the Extend governance task from success, including resources in nested OUs. For more information, see PrecheckOrganizationalUnit.

AWS Control Tower enables nested OUs

November 16, 2021

(No update required for AWS Control Tower landing zone)

AWS Control Tower now enables you to include nested OUs as part of your landing zone.

AWS Control Tower provides support for nested organizational units (OUs), allowing you to organize accounts into multiple hierarchy levels, and to enforce preventive controls hierarchically. You can register OUs containing nested OUs, create and register OUs under parent OUs, and enable controls on any registered OU, regardless of depth. To support this functionality, the console shows the number of governed accounts and OUs.

With nested OUs, you can align your AWS Control Tower OUs to the AWS multi-account strategy, and you can reduce the time required to enable controls on multiple OUs, by enforcing controls at the parent OU level.
Key considerations

1. You can register existing, multi-level OUs with AWS Control Tower one OU at a time, starting with the top-level OU and then proceeding down the tree. For more information, see Expand from flat OU structure to nested OU structure.

2. Accounts directly under a registered OU are enrolled automatically. Accounts further down the tree can be enrolled by registering their immediate parent OU.

3. Preventive controls (SCPs) are inherited down the hierarchy automatically; SCPs applied to the parent are inherited by all nested OUs.

4. Detective controls (AWS Config rules) are NOT inherited automatically.

5. Compliance with detective controls is reported by each OU.

6. SCP drift on an OU affects all accounts and OUs under it.

7. You cannot create new nested OUs under the Security OU (Core OU).

Detective control concurrency

November 5, 2021

(Optional update for AWS Control Tower landing zone)

AWS Control Tower detective controls now support concurrent operations for detective controls, improving the ease of use and performance. You can enable multiple detective controls without waiting for individual control operations to complete.

Supported functionality:

- Enable different detective controls on the same OU (for example, Detect Whether MFA for the Root User is Enabled and Detect Whether Public Write Access to Amazon S3 Buckets is Allowed).
- Enable different detective controls on different OUs, concurrently.
- Guardrail error messaging has been improved to give additional guidance for supported control concurrency operations.

Not supported in this release:

- Enabling the same detective control on multiple OUs concurrently is not supported.
Preventive control concurrency is not supported.

You can experience the detective control concurrency improvements in all versions of AWS Control Tower. It is recommended that customers not currently on version 2.7 perform a landing zone update to take advantage of other features, such as Region selection and deselection, which are available in the latest version.

Two new Regions available

July 29, 2021

(Update required for AWS Control Tower landing zone)

AWS Control Tower is now available in two additional AWS Regions: South America (Sao Paulo), and Europe (Paris). This update expands AWS Control Tower availability to 15 AWS Regions.

If you are new to AWS Control Tower, you can launch it right away in any of the supported Regions. During the launch, you can select the Regions in which you want AWS Control Tower to build and govern your multi-account environment.

If you already have an AWS Control Tower environment and you want to extend or remove AWS Control Tower governance features in one or more supported Regions, go to the Landing Zone Settings page in your AWS Control Tower dashboard, then select the Regions. After updating your landing zone, you must then update all accounts that are governed by AWS Control Tower.

Region deselection

July 29, 2021

(Optional update for AWS Control Tower landing zone)

AWS Control Tower Region deselection enhances your ability to manage the geographical footprint of your AWS Control Tower resources. You can deselect Regions you would no longer like AWS Control Tower to govern. This feature provides you with the capability to address compliance and regulatory concerns while balancing the costs associated with expanding into additional Regions.

Region deselection is available when you update your AWS Control Tower landing zone version.

When you use Account Factory to create a new account or enroll a pre-existing member account, or when you select Extend Governance to enroll accounts in a pre-existing organizational unit, AWS Control Tower deploys its governance capabilities—which include centralized logging, monitoring,
and controls—in your chosen Regions in the accounts. Choosing to deselect a Region and remove AWS Control Tower governance from that Region removes that governance functionality, but it does not inhibit your users’ ability to deploy AWS resources or workloads into those Regions.

**AWS Control Tower works with AWS Key Management Systems**

**July 28, 2021**

(Optional update for AWS Control Tower landing zone)

AWS Control Tower provides you the option to use an AWS Key Management Service (AWS KMS) key. A key is provided and managed by you, to secure the services that AWS Control Tower deploys, including AWS CloudTrail, AWS Config, and the associated Amazon S3 data. AWS KMS encryption is an enhanced level of encryption over the SSE-S3 encryption that AWS Control Tower uses by default.

The integration of AWS KMS support into AWS Control Tower aligns with the **AWS Foundational Security Best Practices**, which recommend an added layer of security for your sensitive log files. You should use AWS KMS–managed keys (SSE-KMS) for encryption at rest. AWS KMS encryption support is available when you set up a new landing zone or when you update your existing AWS Control Tower landing zone.

To configure this functionality, you can select **KMS Key Configuration** during your initial landing zone setup. You can choose an existing KMS key, or you can select a button that directs you to the AWS KMS console to create a new one. You also have the flexibility to change from default encryption to SSE-KMS, or to a different SSE-KMS key.

For an existing AWS Control Tower landing zone, you can perform an update to start using AWS KMS keys.

**Controls renamed, functionality unchanged**

**July 26, 2021**

(No update required for AWS Control Tower landing zone)

AWS Control Tower is revising certain control names and descriptions to better reflect the policy intentions of the control. The revised names and descriptions help you understand more intuitively the ways in which controls embody the policies of your accounts. For example, we changed part of the names of detective controls from “Disallow” to “Detect” because the detective control itself
does not stop a specific action, it only detects policy violations and provides alerts through the dashboard.

Control functionality, guidance, and implementation remain unchanged. Only the control names and descriptions have been revised.

**AWS Control Tower scans SCPs daily to check for drift**

May 11, 2021

(No update required for AWS Control Tower landing zone)

AWS Control Tower now performs daily automated scans of your managed SCPs to verify that the corresponding controls are applied correctly and that they have not drifted. If a scan discovers drift, you will receive a notification. AWS Control Tower sends only one notification per drift issue, so if your landing zone already is in a state of drift, you will not receive additional notifications unless a new drift item is found.

**Customized names for OUs and accounts**

April 16, 2021

(No update required for AWS Control Tower landing zone)

AWS Control Tower now allows you to customize your landing zone naming. You can retain the names that AWS Control Tower recommends for the organizational units (OUs) and core accounts, or you can modify these names during the initial landing zone set up process.

The default names that AWS Control Tower provides for the OUs and core accounts match the AWS multi-account best practices guidance. However, if your company has specific naming policies, or if you already have an existing OU or account with the same recommended name, the new OU and account naming functionality gives you the flexibility to address those constraints.

Separately from that workflow change during setup, the OU formerly known as the Core OU is now called the Security OU, and the OU formerly known as the Custom OU is now called the Sandbox OU. We made this change to improve our alignment with overall AWS best practices guidance for naming.

New customers will see these new OU names. Existing customers will continue to see the original names of these OUs. You may encounter some inconsistencies in OU naming while we are updating our documentation to the new names.
To get started with AWS Control Tower from the AWS Management Console, go to the AWS Control Tower console, and select Set up landing zone in the top right. For additional information, you can read about planning your AWS Control Tower landing zone.

AWS Control Tower landing zone version 2.7

April 8, 2021

(Update required for AWS Control Tower landing zone to version 2.7. For information, see Update Your Landing Zone)

With AWS Control Tower version 2.7, AWS Control Tower introduces four new mandatory preventative Log Archive controls that implement policy solely on AWS Control Tower resources. We have adjusted the guidance on four existing Log Archive controls from mandatory to elective, because they set policy for resources outside of AWS Control Tower. This control change and expansion provides the ability to separate Log Archive governance for resources within AWS Control Tower from governance of resources outside of AWS Control Tower.

The four changed controls can be used in conjunction with the new mandatory controls to provide governance to a broader set of AWS Log Archives. Existing AWS Control Tower environments will keep these four changed controls enabled automatically, for environment consistency; however, these elective controls now can be disabled. New AWS Control Tower environments must enable all elective controls. Existing environments must disable the formerly mandatory controls before adding encryption to Amazon S3 buckets that are not deployed by AWS Control Tower.

New mandatory controls:

- Disallow Changes to Encryption Configuration for AWS Control Tower Created S3 Buckets in Log Archive
- Disallow Changes to Logging Configuration for AWS Control Tower Created S3 Buckets in Log Archive
- Disallow Changes to Bucket Policy for AWS Control Tower Created S3 Buckets in Log Archive
- Disallow Changes to Lifecycle Configuration for AWS Control Tower Created S3 Buckets in Log Archive

Guidance changed from Mandatory to Elective:

- Disallow Changes to Encryption Configuration for all Amazon S3 Buckets [Previously: Enable Encryption at Rest for Log Archive]
• Disallow Changes to Logging Configuration for all Amazon S3 Buckets [Previously: Enable Access Logging for Log Archive]

• Disallow Changes to Bucket Policy for all Amazon S3 Buckets [Previously: Disallow Policy Changes to Log Archive]

• Disallow Changes to Lifecycle Configuration for all Amazon S3 Buckets [Previously: Set a Retention Policy for Log Archive]

AWS Control Tower version 2.7 includes changes to the AWS Control Tower landing zone blueprint that can cause incompatibility with previous versions after you upgrade to 2.7.

• In particular, AWS Control Tower version 2.7 enables BlockPublicAccess automatically on S3 buckets deployed by AWS Control Tower. You can turn this default off if your workload requires access across accounts. For more information about what happens with BlockPublicAccess enabled, see Blocking public access to your Amazon S3 storage.

• AWS Control Tower version 2.7 includes a requirement for HTTPS. All requests sent to S3 buckets deployed by AWS Control Tower must use secure socket layer (SSL). Only HTTPS requests are allowed to pass. If you use HTTP (without SSL) as an endpoint to send the requests, this change gives you an access denied error, which can potentially break your workflow. This change cannot be reverted after the 2.7 update to your landing zone.

  We recommend that you change your requests to use TLS instead of HTTP.

Three new AWS Regions available

April 8, 2021

(Update required for AWS Control Tower landing zone)

AWS Control Tower is available in three additional AWS Regions: Asia Pacific (Tokyo) Region, Asia Pacific (Seoul) Region, and Asia Pacific (Mumbai) Region. A landing zone update to version 2.7 is required for expanding governance into these Regions.

Your landing zone is not expanded automatically into these Regions when you perform the update to version 2.7, you must view and select them in the Regions table for inclusion.

Govern selected Regions only

February 19, 2021
AWS Control Tower Region selection provides better ability to manage the geographical footprint of your AWS Control Tower resources. To expand the number of Regions in which you host AWS resources or workloads – for compliance, regulatory, cost, or other reasons – you can now select the additional Regions to govern.

Region selection is available when you set up a new landing zone or update your AWS Control Tower landing zone version. When you use Account Factory to create a new account or enroll a pre-existing member account, or when you use Extend Governance to enroll accounts in a pre-existing organizational unit, AWS Control Tower deploys its governance capabilities of centralized logging, monitoring, and controls in your chosen Regions in the accounts. For more information about selecting Regions, see Configure your AWS Control Tower Regions.

AWS Control Tower now extends governance to existing OUs in your AWS organizations

January 28, 2021

(No update required for AWS Control Tower landing zone)

Extend governance to existing organizational units (OUs) (those not in AWS Control Tower) from within the AWS Control Tower console. With this feature, you can bring top-level OUs and included accounts under AWS Control Tower governance. For information about extending governance to an entire OU, see Register an existing organizational unit with AWS Control Tower.

When you register an OU, AWS Control Tower performs a series of checks to ensure successful extension of governance and enrollment of accounts within the OU. For more information about common issues associated with the initial registration of an OU, see Common causes of failure during registration or re-registration.

You can also visit the AWS Control Tower product webpage or visit YouTube to watch this video about getting started with AWS Control Tower for AWS Organizations.

AWS Control Tower provides bulk account updates

January 28, 2021

(No update required for AWS Control Tower landing zone)
With the bulk update feature, you can now update all accounts in a registered AWS Organizations organizational unit (OU) containing up to 300 accounts, with a single click, from the AWS Control Tower dashboard. This is particularly useful in cases where you update your AWS Control Tower landing zone and must also update your enrolled accounts to align them to the current landing zone version.

This feature also helps you keep your accounts up to date when you update your AWS Control Tower landing zone to expand to new regions, or when you want to re-register an OU to ensure that all accounts in that OU have the latest controls applied. Bulk account update eliminates the need to update one account at a time or use an external script to perform the update on multiple accounts.

For information about updating a landing zone, see [Update Your Landing Zone](#).

For information about registering or re-registering an OU, see [Register an existing organizational unit with AWS Control Tower](#).

**January - December 2020**

In 2020, AWS Control Tower released the following updates:

- [AWS Control Tower console now links to external AWS Config rules](#)
- [AWS Control Tower now available in additional Regions](#)
- [Guardrail update](#)
- [AWS Control Tower console shows more detail about OUs and accounts](#)
- [Use AWS Control Tower to set up new multi-account AWS environments in AWS Organizations](#)
- [Customizations for AWS Control Tower solution](#)
- [General availability of AWS Control Tower version 2.3](#)
- [Single-step account provisioning in AWS Control Tower](#)
- [AWS Control Tower decommissioning tool](#)
- [AWS Control Tower lifecycle event notifications](#)

**AWS Control Tower console now links to external AWS Config rules**

**December 29, 2020**
(Update required for AWS Control Tower landing zone to version 2.6. For information, see Update Your Landing Zone)

AWS Control Tower now includes an organization-level aggregator, which assists in detecting external AWS Config rules. This provides you with visibility in the AWS Control Tower console to see the existence of externally created AWS Config rules in addition to those AWS Config rules created by AWS Control Tower. The aggregator allows AWS Control Tower to detect external rules and provide a link to the AWS Config console without the need for AWS Control Tower to gain access to unmanaged accounts.

With this feature, you now have a consolidated view of detective controls applied to your accounts so you can track compliance and determine if you need additional controls for your account. For information, see How AWS Control Tower aggregates AWS Config rules in unmanaged OUs and accounts.

AWS Control Tower now available in additional Regions

November 18, 2020

(Update required for AWS Control Tower landing zone to version 2.5. For information, see Update Your Landing Zone)

AWS Control Tower is now available in 5 additional AWS Regions:

- Asia Pacific (Singapore) Region
- Europe (Frankfurt) Region
- Europe (London) Region
- Europe (Stockholm) Region
- Canada (Central) Region

The addition of these 5 AWS Regions is the only change introduced for version 2.5 of AWS Control Tower.

AWS Control Tower is also available in US East (N. Virginia) Region, US East (Ohio) Region, US West (Oregon) Region, Europe (Ireland) Region, and Asia Pacific (Sydney) Region. With this launch AWS Control Tower is now available in 10 AWS Regions.

This landing zone update includes all Regions listed and cannot be undone. After updating your landing zone to version 2.5, you must manually update all enrolled accounts for AWS Control Tower.
Guardrail update

October 8, 2020

(No update required for AWS Control Tower landing zone)

An updated version has been released for the mandatory control AWS-GR_IAM_ROLE_CHANGE_PROHIBITED.

This change to the control is required because accounts that are being enrolled automatically into AWS Control Tower must have the AWSControlTowerExecution role enabled. The previous version of the control prevents this role from being created.

For more information, see Control update in the AWS Control Tower User Guide Control reference.

AWS Control Tower console shows more detail about OUs and accounts

July 22, 2020

(No update required for AWS Control Tower landing zone)

You can view your organizations and accounts that are not enrolled in AWS Control Tower, alongside organizations and accounts that are enrolled.

Within the AWS Control Tower console, you can view more detail about your AWS accounts and organizational units (OUs). The Accounts page now lists all accounts in your organization, regardless of OU or enrollment status in AWS Control Tower. You can now search, sort, and filter across all tables.

Use AWS Control Tower to set up new multi-account AWS environments in AWS Organizations

April 22, 2020

(No update required for AWS Control Tower landing zone)

AWS Organizations customers can now use AWS Control Tower to manage newly created organizational units (OUs) and accounts by taking advantage of these new capabilities:
• Existing AWS Organizations customers can now set up a new landing zone for new organizational units (OUs) in their existing management account. You can create new OUs in AWS Control Tower and create new accounts in those OUs with AWS Control Tower governance.

• AWS Organizations customers can enroll existing accounts using the account enrollment process or through scripting.

AWS Control Tower provides an orchestration service that uses other AWS services. It's designed for organizations with multiple accounts and teams who are looking for the easiest way to set up their new or existing multi-account AWS environment and govern at scale. With an organization governed by AWS Control Tower, cloud administrators know that accounts in the organization are compliant with established policies. Builders benefit because they can provision new AWS accounts quickly, without undue concerns about compliance.

For information about setting up a landing zone, see Plan your AWS Control Tower landing zone. You can also visit the AWS Control Tower product webpage or visit YouTube to watch this video about getting started with AWS Control Tower for AWS Organizations.

In addition to this change, the Quick account provisioning capability in AWS Control Tower was renamed to Enroll account. It now permits enrollment of existing AWS accounts as well as creation of new accounts. For more information, see Enroll an existing account.

Customizations for AWS Control Tower solution

March 17, 2020

(No update required for AWS Control Tower landing zone)

AWS Control Tower now includes a new reference implementation that makes it easy for you to apply custom templates and policies to your AWS Control Tower landing zone.

With customizations for AWS Control Tower, you can use AWS CloudFormation templates to deploy new resources to existing and new accounts within your organization. You can also apply custom service control policies (SCPs) to those accounts in addition to the SCPs already provided by AWS Control Tower. Customizations for AWS Control Tower pipeline integrate with AWS Control Tower lifecycle events and notifications (Lifecycle Events in AWS Control Tower) to ensure that resource deployments stay in sync with your landing zone.

The deployment documentation for this AWS Control Tower solution architecture is available through the AWS Solutions web page.
General availability of AWS Control Tower version 2.3

March 5, 2020

(Update required for AWS Control Tower landing zone. For information, see Update Your Landing Zone.)

AWS Control Tower is now available in the Asia Pacific (Sydney) AWS Region, in addition to the US East (Ohio), US East (N. Virginia), US West (Oregon), and Europe (Ireland) Regions. The addition of the Asia Pacific (Sydney) Region is the only change introduced for version 2.3 of AWS Control Tower.

If you have not used AWS Control Tower previously, you can launch it today in any of the supported Regions. If you are already using AWS Control Tower and want to extend its governance features to the Asia Pacific (Sydney) Region in your accounts, go to the Settings page in your AWS Control Tower dashboard. From there, update your landing zone to the latest release. Then, update your accounts individually.

Note
Updating your landing zone does not automatically update your accounts. If you have more than a few accounts, the required updates can be time-consuming. For that reason, we recommend that you avoid expanding your AWS Control Tower landing zone into Regions in which you do not require your workloads to run.

For information about the expected behavior of detective controls as a result of a deployment to a new Region, see Configure your AWS Control Tower Regions.

Single-step account provisioning in AWS Control Tower

March 2, 2020

(No update required for AWS Control Tower landing zone)

AWS Control Tower now supports single-step account provisioning through the AWS Control Tower console. This feature allows you to provision new accounts from within the AWS Control Tower console.

To use the simplified form, navigate to Account Factory in the AWS Control Tower console and then choose Quick account provisioning. AWS Control Tower assigns the same email address to
the provisioned account and to the single sign-on (IAM Identity Center) user that is created for the account. If you require these two email addresses to be different, you must provision your account through Service Catalog.

Update accounts that you create through quick account provisioning by using Service Catalog and the AWS Control Tower account factory, just like updates to any other account.

---

**Note**

In April 2020, the **Quick account provisioning** capability was renamed to **Enroll account**. In June 2022, the ability to create and update accounts in the AWS Control Tower console was separated from the ability to enroll AWS accounts. For more information, see [Enroll an existing account](#).

---

**AWS Control Tower decommissioning tool**

**February 28, 2020**

(No update required for AWS Control Tower landing zone)

AWS Control Tower now supports an automated decommissioning tool to assist you in cleaning up resources allocated by AWS Control Tower. If you no longer intend to use AWS Control Tower for your enterprise, or if you require a major redeployment of your organizational resources, you may want to clean up the resources created when you initially set up your landing zone.

To decommission your landing zone by using a process that is mostly automated, contact AWS Support to get assistance with the additional steps that are required. For more information about decommissioning, see [Walkthrough: Decommission an AWS Control Tower Landing Zone](#).

**AWS Control Tower lifecycle event notifications**

**January 22, 2020**

(No update required for AWS Control Tower landing zone)

AWS Control Tower announces the availability of lifecycle event notifications. A **lifecycle event** marks the completion of an AWS Control Tower action that can change the state of resources such as organizational units (OUs), accounts, and controls that are created and managed by AWS
Control Tower. Lifecycle events are recorded as AWS CloudTrail events and delivered to Amazon EventBridge as events.

AWS Control Tower records lifecycle events at the completion of the following actions that can be performed using the service: creating or updating a landing zone; creating or deleting an OU; enabling or disabling a control on an OU; and using account factory to create a new account or to move an account to another OU.

AWS Control Tower uses multiple AWS services to build and govern a best practices multi-account AWS environment. It can take several minutes for an AWS Control Tower action to complete. You can track lifecycle events in the CloudTrail logs to verify if the originating AWS Control Tower action completed successfully. You can create an EventBridge rule to notify you when CloudTrail records a lifecycle event or to automatically trigger the next step in your automation workflow.

**January - December 2019**

From January 1 through December 31, 2019, AWS Control Tower released the following updates:

- [General availability of AWS Control Tower version 2.2](#)
- [New elective controls in AWS Control Tower](#)
- [New detective controls in AWS Control Tower](#)
- [AWS Control Tower accepts email addresses for shared accounts with different domains than the management account](#)
- [General availability of AWS Control Tower version 2.1](#)

**General availability of AWS Control Tower version 2.2**

**November 13, 2019**

(Update required for AWS Control Tower landing zone. For information, see [Update Your Landing Zone](#).)

AWS Control Tower version 2.2 provides three new preventive controls that prevent drift in accounts:

- [Disallow Changes to Amazon CloudWatch Logs Log Groups set up by AWS Control Tower](#)
- [Disallow Deletion of AWS Config Aggregation Authorizations Created by AWS Control Tower](#)
• Disallow Deletion of Log Archive

A control is a high-level rule that provides ongoing governance for your overall AWS environment. When you create your AWS Control Tower landing zone, the landing zone and all the organizational units (OUs), accounts, and resources are compliant with the governance rules enforced by your chosen controls. As you and your organization members use the landing zone, changes (accidental or intentional) in this compliance status may occur. Drift detection helps you identify resources that need changes or configuration updates to resolve the drift. For more information, see Detect and resolve drift in AWS Control Tower.

New elective controls in AWS Control Tower

September 05, 2019

(No update required for AWS Control Tower landing zone)

AWS Control Tower now includes the following four new elective controls:

• Disallow Delete Actions on Amazon S3 Buckets Without MFA
• Disallow Changes to Replication Configuration for Amazon S3 Buckets
• Disallow Actions as a Root User
• Disallow Creation of Access Keys for the Root User

A control is a high-level rule that provides ongoing governance for your overall AWS environment. Guardrails enable you to express your policy intentions. For more information, see About controls in AWS Control Tower.

New detective controls in AWS Control Tower

August 25, 2019

(No update required for AWS Control Tower landing zone)

AWS Control Tower now includes the following eight new detective controls:

• Detect Whether Versioning for Amazon S3 Buckets is Enabled
• Detect Whether MFA is Enabled for AWS IAM Users of the AWS Console
• Detect Whether MFA is Enabled for AWS IAM Users
- Detect Whether Amazon EBS Optimization is Enabled for Amazon EC2 Instances
- Detect Whether Amazon EBS Volumes are Attached to Amazon EC2 Instances
- Detect Whether Public Access to Amazon RDS Database Instances is Enabled
- Detect Whether Public Access to Amazon RDS Database Snapshots is Enabled
- Detect Whether Storage Encryption is Enabled for Amazon RDS Database Instances

A control is a high-level rule that provides ongoing governance for your overall AWS environment. A detective control detects noncompliance of resources within your accounts, such as policy violations, and provides alerts through the dashboard. For more information, see About controls in AWS Control Tower.

AWS Control Tower accepts email addresses for shared accounts with different domains than the management account

August 01, 2019

(No update required for AWS Control Tower landing zone)

In AWS Control Tower, you can now submit email addresses for shared accounts (log archive and audit member) and child accounts (vended using account factory) whose domains are different from the management account's email address. This feature is available only when you create a new landing zone and when you provision new child accounts.

General availability of AWS Control Tower version 2.1

June 24, 2019

(Update required for AWS Control Tower landing zone. For information, see Update Your Landing Zone.)

AWS Control Tower is now generally available and supported for production use. AWS Control Tower is intended for organizations with multiple accounts and teams who are looking for the easiest way to set up their new multi-account AWS environment and govern at scale. With AWS Control Tower, you can help make sure that accounts in your organization are compliant with established policies. End users on distributed teams can provision new AWS accounts quickly.

Using AWS Control Tower, you can set up a landing zone that employs best practices such as configuring a multi-account structure using AWS Organizations, managing user identities and
federated access with AWS IAM Identity Center, enabling account provisioning through Service Catalog, and creating a centralized log archive using AWS CloudTrail and AWS Config.

For ongoing governance, you can enable pre-configured controls, which are clearly defined rules for security, operations, and compliance. Guardrails help prevent deployment of resources that don’t conform to policies and continuously monitor deployed resources for nonconformance. The AWS Control Tower dashboard provides centralized visibility into an AWS environment including accounts provisioned, controls enabled, and the compliance status of accounts.

You can set up a new multi-account environment with a single click in the AWS Control Tower console. There are no additional charges or upfront commitments to use AWS Control Tower. You pay only for those AWS services that you enabled to set up a landing zone and implement selected controls.
Document history

- **Latest documentation update:** December 14, 2023

The following table describes important changes to the *AWS Control Tower User Guide*. For notifications about documentation updates, you can subscribe to the RSS feed.

<table>
<thead>
<tr>
<th>Change</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AWS Control Tower landing zone version 3.3</strong></td>
<td>AWS Control Tower landing zone version 3.3 available.</td>
<td>December 14, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower announces controls to assist digital sovereignty</strong></td>
<td>AWS Control Tower released a group of controls to help customers with digital sovereignty requirements.</td>
<td>November 27, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower supports landing zone APIs</strong></td>
<td>AWS Control Tower supports configuring and launching landing zones using new APIs.</td>
<td>November 26, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower supports tagging enabled controls</strong></td>
<td>AWS Control Tower supports tagging enabled controls, in console and with new APIs.</td>
<td>November 10, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower available in Asia Pacific (Melbourne) AWS Region</strong></td>
<td>Available in Asia Pacific (Melbourne) Region.</td>
<td>November 3, 2023</td>
</tr>
<tr>
<td><strong>New control API available</strong></td>
<td>AWS Control Tower released a new control API.</td>
<td>October 14, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower launches new controls</strong></td>
<td>AWS Control Tower released new proactive and detective controls.</td>
<td>October 5, 2023</td>
</tr>
<tr>
<td>Event Description</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>AWS Control Tower reports drift from disabling trusted access</strong></td>
<td>AWS Control Tower notifies customers when drift occurs, if customers turn off trusted access to AWS Control Tower in AWS Organizations.</td>
<td>September 21, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower available in four additional AWS Regions</strong></td>
<td>Available in Asia Pacific (Hyderabad), Europe (Spain and Zurich), and Middle East (UAE).</td>
<td>September 13, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower available in Tel Aviv Region</strong></td>
<td>AWS Control Tower is available in the Tel Aviv Region, il-central-1.</td>
<td>August 28, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower launches 28 new proactive controls</strong></td>
<td>AWS Control Tower released 28 new proactive controls.</td>
<td>July 24, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower deprecates 2 controls</strong></td>
<td>AWS Control Tower will remove two controls from the controls library, effective August 18, 2023.</td>
<td>July 18, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower landing zone 3.2 available</strong></td>
<td>AWS Control Tower landing zone version 3.2 is available.</td>
<td>June 16, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower handles accounts based on ID</strong></td>
<td>AWS Control Tower tracks the AWS account ID, rather than the account's email address.</td>
<td>June 14, 2023</td>
</tr>
<tr>
<td><strong>Additional Security Hub detective controls available</strong></td>
<td>AWS Control Tower adds ten new controls to the controls library, for the Security Hub Service-Managed Standard: AWS Control Tower.</td>
<td>June 12, 2023</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>----------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>AWS Control Tower publishes control metadata tables</strong></td>
<td>AWS Control Tower now provides tables of control metadata as part of the published documentation.</td>
<td>June 7, 2023</td>
</tr>
<tr>
<td><strong>Terraform support for Account Factory Customization</strong></td>
<td>Single-region support for Terraform open source blueprints in AFC.</td>
<td>June 6, 2023</td>
</tr>
<tr>
<td><strong>AWS IAM self-management available for landing zone</strong></td>
<td>AWS Control Tower now supports customers in choosing their identity provider for a landing zone.</td>
<td>June 6, 2023</td>
</tr>
<tr>
<td><strong>New role added</strong></td>
<td>AWS Control Tower added a new service-linked role, <code>AWSServiceRoleForAWSControlTower</code>, and associated policy, <code>AWSControlTowerAccountServiceRolePolicy</code>.</td>
<td>June 1, 2023</td>
</tr>
<tr>
<td><strong>Mixed governance update</strong></td>
<td>Update to advise customers regarding mixed governance.</td>
<td>June 1, 2023</td>
</tr>
<tr>
<td><strong>Additional proactive controls available</strong></td>
<td>New proactive controls assist you in governing your multi-account environment and meeting specific control objectives.</td>
<td>May 19, 2023</td>
</tr>
<tr>
<td><strong>Seven additional Regions available</strong></td>
<td>AWS Control Tower is now available in seven additional AWS Regions: Northern California (San Francisco), Asia Pacific (Hong Kong, Jakarta, and Osaka), Europe (Milan), Middle East (Bahrain), and Africa (Cape Town).</td>
<td>April 19, 2023</td>
</tr>
<tr>
<td><strong>Change to a managed policy</strong></td>
<td>We changed the <code>AWSControlTowerServiceRolePolicy</code> so that AWS Control Tower can call the <code>EnableRegion</code>, <code>ListRegions</code>, <code>GetRegionOptStatus</code> APIs that are implemented by the AWS Account Management service.</td>
<td>April 6, 2023</td>
</tr>
<tr>
<td><strong>Account customization request tracing generally available</strong></td>
<td>AWS Control Tower now supports the ability to trace account customization requests using the Account Factory for Terraform (AFT) workflow.</td>
<td>February 16, 2023</td>
</tr>
<tr>
<td><strong>IAM best practices update</strong></td>
<td>Updated guide to align with the IAM best practices recommendations. For more information, see Security best practices in IAM.</td>
<td>February 15, 2023</td>
</tr>
<tr>
<td><strong>AWS Control Tower landing zone 3.1 available</strong></td>
<td>AWS Control Tower landing zone 3.1 is available.</td>
<td>February 9, 2023</td>
</tr>
<tr>
<td><strong>Proactive controls generally available</strong></td>
<td>Proactive controls are launched from preview status to general availability.</td>
<td>January 24, 2023</td>
</tr>
<tr>
<td>Topic</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Concurrent account operations</td>
<td>AWS Control Tower now supports up to five (5) concurrent actions in account factory. You can create, update, or enroll up to five accounts at a time.</td>
<td>December 16, 2022</td>
</tr>
<tr>
<td>Proactive controls assist in resource provisioning</td>
<td>AWS Control Tower now supports proactive controls, implemented through AWS CloudFormation hooks.</td>
<td>November 28, 2022</td>
</tr>
<tr>
<td>Account factory customization available</td>
<td>AWS Control Tower now supports account provisioning with customizable account templates, called blueprints, directly from the AWS Control Tower console.</td>
<td>November 28, 2022</td>
</tr>
<tr>
<td>Compliance status viewable for all AWS Config rules</td>
<td>AWS Control Tower now displays the compliance status of all AWS Config rules deployed into organizational units registered with AWS Control Tower.</td>
<td>November 18, 2022</td>
</tr>
<tr>
<td>Change to a managed policy</td>
<td>We changed the AWSControlTowerServiceRolePolicy so that AWS Control Tower can assume the AWSControlTowerBlueprintAccess role, which is needed for Account Factory customizations.</td>
<td>October 28, 2022</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>APIs for controls, AWS CloudFormation resource</td>
<td>AWS Control Tower now supports activation and deactivation of controls through a set of API calls, and a new AWS CloudFormation resource.</td>
<td>September 1, 2022</td>
</tr>
<tr>
<td>CfCT supports stack set deletion</td>
<td>CfCT supports stack set deletion, by setting a parameter in the manifest file.</td>
<td>August 26, 2022</td>
</tr>
<tr>
<td>Customized log retention</td>
<td>You can customize the retention policy for Amazon S3 buckets that store your AWS Control Tower CloudTrail logs, in increments of days or years, up to a maximum of 15 years.</td>
<td>August 15, 2022</td>
</tr>
<tr>
<td>Role drift repair available</td>
<td>AWS Control Tower supports repair for role drift, without a full repair of the landing zone.</td>
<td>August 11, 2022</td>
</tr>
</tbody>
</table>
Version 3.0 available

AWS Control Tower landing zone version 3.0 changes from account-based AWS CloudTrail trails to organization-based trails, and it updates the managed policy to enable organization-level trails. It enables you to aggregate AWS Config information in your home Region only. Version 3.0 also includes an update to the Region deny control, and two new detective controls.

July 29, 2022

The Organization page combines views of OUs and accounts

The new Organization page in AWS Control Tower shows a hierarchical view of all Organizational units (OUs) and accounts.

July 18, 2022

Change to a managed policy

We changed the AWSControlTowerServiceRolePolicy so that customers can have organization-level AWS CloudTrail trails to aggregate AWS CloudTrail logs.

June 20, 2022
<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easier enroll and update for member accounts</td>
<td>AWS Control Tower now gives you the capability to enroll and update member accounts individually, from within your landing zone. Each account shows when it is available for an update. We separated the <strong>Enroll account</strong> button from the <strong>Create</strong> account workflow in Account Factory.</td>
<td>May 31, 2022</td>
</tr>
<tr>
<td>AFT supports customization for shared accounts</td>
<td>AWS Control Tower Account Factory for Terraform now supports customization for the AWS Control Tower management account, log archive, and audit accounts.</td>
<td>May 27, 2022</td>
</tr>
<tr>
<td>Concurrent operations for all optional controls</td>
<td>AWS Control Tower now allows you to apply and remove optional preventive guardrails concurrently, as well as detective controls.</td>
<td>May 18, 2022</td>
</tr>
<tr>
<td>Existing security and logging accounts</td>
<td>AWS Control Tower now supports the ability to bring existing security and logging accounts, rather than creating new ones during landing zone setup.</td>
<td>May 16, 2022</td>
</tr>
<tr>
<td>Version 2.9 available</td>
<td>AWS Control Tower landing zone version 2.9 updates the notification forwarder Lambda to use the Python version 3.9 runtime.</td>
<td>April 22, 2022</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Updated support for AWS best practices, version 2.8 available</strong></td>
<td>AWS Control Tower landing zone version 2.8 provides additional support to ensure that your workloads and AWS accounts are in alignment with AWS best practices.</td>
<td>February 10, 2022</td>
</tr>
<tr>
<td><strong>Region deny control</strong></td>
<td>AWS Control Tower now includes a control that helps you restrict access to AWS Regions, to address compliance and regulatory concerns.</td>
<td>November 30, 2021</td>
</tr>
<tr>
<td><strong>Data residency controls</strong></td>
<td>AWS Control Tower now support controls that help you manage data residency with granular control.</td>
<td>November 30, 2021</td>
</tr>
<tr>
<td><strong>AWS Control Tower Account factory for Terraform</strong></td>
<td>AWS Control Tower now supports Terraform for automated account provisioning and updating.</td>
<td>November 29, 2021</td>
</tr>
<tr>
<td><strong>New lifecycle event available</strong></td>
<td>The PrecheckOrganizationalUnit event logs whether any resources block the <strong>Extend governance</strong> task from success, including resources in nested OUs.</td>
<td>November 18, 2021</td>
</tr>
<tr>
<td><strong>Nested OUs available</strong></td>
<td>AWS Control Tower now enables your landing zone to contain nested OU structures.</td>
<td>November 16, 2021</td>
</tr>
<tr>
<td><strong>Detective control concurrency</strong></td>
<td>AWS Control Tower detective controls now support concurrent enable and disable operations.</td>
<td>November 5, 2021</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Two new regions available</strong></td>
<td>AWS Control Tower is now available in two new AWS Regions, Europe (Paris) Region and South America (São Paulo) Region.</td>
<td>July 29, 2021</td>
</tr>
<tr>
<td><strong>Region deselection</strong></td>
<td>You can deselect AWS Regions that you no longer wish to govern through AWS Control Tower.</td>
<td>July 29, 2021</td>
</tr>
<tr>
<td><strong>KMS keys available</strong></td>
<td>You can optionally create or choose KMS keys that you manage, to encrypt your data and resources.</td>
<td>July 28, 2021</td>
</tr>
<tr>
<td><strong>Change to a managed policy</strong></td>
<td>We changed the <code>AWSControlTowerServiceRolePolicy</code> so that customers can use their own KMS encryption keys for AWS CloudTrail logs.</td>
<td>July 28, 2021</td>
</tr>
<tr>
<td><strong>Control names changed, functionality unchanged</strong></td>
<td>Certain control names and descriptions were updated to better reflect the policy intentions of the control, with no change in functionality.</td>
<td>July 26, 2021</td>
</tr>
<tr>
<td><strong>Automated scans of managed SCPs</strong></td>
<td>AWS Control Tower performs daily automated scans of managed SCPs to check for drift.</td>
<td>May 11, 2021</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Customized names for OUs and accounts</td>
<td>AWS Control Tower allows you to provide customized names during the landing zone setup process, for essential OUs and accounts, without creating drift.</td>
<td>April 16, 2021</td>
</tr>
<tr>
<td>Decommissioning a landing zone is self-service</td>
<td>AWS Control Tower now allows you to decommission a landing zone without contacting AWS Support. Decommissioning is a semi-automated process that cannot be undone. It is not the same as deleting all AWS Control Tower resources manually.</td>
<td>April 9, 2021</td>
</tr>
<tr>
<td>Three additional Regions</td>
<td>AWS Control Tower is now available in three additional AWS Regions: Asia Pacific (Tokyo) Region, Asia Pacific (Seoul) Region, and Asia Pacific (Mumbai) Region.</td>
<td>April 8, 2021</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>New Log Archive controls, landing zone version 2.7 available</strong></td>
<td>Four new Log Archive controls provide Log Archive governance over AWS Control Tower resources, separately from governance of resources outside of AWS Control Tower. Guidance on four existing controls has changed from mandatory to elective. Version 2.7 of the AWS Control Tower landing zone includes a requirement for HTTPS, which cannot be undone after you update.</td>
<td>April 8, 2021</td>
</tr>
<tr>
<td><strong>Region selection</strong></td>
<td>AWS Control Tower Region selection provides better ability to manage the geographical footprint of your AWS Control Tower resources. To expand the number of Regions in which you host AWS resources or workloads – for compliance, regulatory, cost, or other reasons – you can now select the additional Regions to govern.</td>
<td>February 19, 2021</td>
</tr>
<tr>
<td><strong>Register an OU and govern all of its accounts with AWS Control Tower at one time</strong></td>
<td>AWS Control Tower adds the capability to register an OU, which is a way to bring multiple accounts into governance at the same time.</td>
<td>January 28, 2021</td>
</tr>
<tr>
<td>Date</td>
<td>Feature Description</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>January 28, 2021</td>
<td><strong>Multiple account updates in registered OUs</strong> You can now update all accounts in any registered AWS Organizations organizational unit (OU) containing up to 300 accounts, with a single click, from the AWS Control Tower dashboard. The multiple account update feature, also referred to as bulk update, eliminates the need to update one account at a time, or to use an external script to perform the update on multiple accounts together.</td>
<td></td>
</tr>
<tr>
<td>December 29, 2020</td>
<td><strong>New role for aggregating unmanaged OUs and accounts</strong> A new role assists in detecting external AWS Config rules, so AWS Control Tower does not need to gain access to unmanaged accounts.</td>
<td></td>
</tr>
<tr>
<td>AWS Control Tower is available in more AWS Regions.</td>
<td>AWS Control Tower is now available to be deployed in the Asia Pacific (Singapore) Region, Europe (Frankfurt) Region, Europe (London) Region, Europe (Stockholm) Region, and Canada (Central) Region. With this launch AWS Control Tower is now available in 10 AWS Regions. This landing zone update includes all Regions listed, and it cannot be undone. After updating your landing zone to version 2.5, you must manually update all enrolled accounts for AWS Control Tower to govern in the 10 supported AWS Regions.</td>
<td>November 18, 2020</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Control update</strong></td>
<td>An updated version has been released for the mandatory control <code>AWS-GR_IAM_ROLE_CHANGE_PROHIBITED</code>. The updated control allows easier automated enrollment of accounts.</td>
<td>October 8, 2020</td>
</tr>
<tr>
<td><strong>Related information page is now available for AWS Control Tower</strong></td>
<td>The related information page makes it easier to find common tasks that may be helpful after setting up your AWS Control Tower landing zone.</td>
<td>September 18, 2020</td>
</tr>
<tr>
<td>AWS Control Tower console shows more detail about OUs and accounts.</td>
<td>Within the AWS Control Tower console, you can view more detail about your AWS accounts and organizational units (OUs). The ‘Accounts’ page now lists all accounts in your organization, regardless of OU or enrollment status in AWS Control Tower. You can now search, sort, and filter across all tables.</td>
<td>July 22, 2020</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>AWS Control Tower allows existing organizations to set up a landing zone</td>
<td>You can now launch a landing zone for AWS Control Tower in an existing organization, to bring the organization into governance. The Quick account provisioning capability in AWS Control Tower was renamed to Enroll account and it now permits enrollment of existing AWS accounts as well as creation of new accounts.</td>
<td>April 16, 2020</td>
</tr>
<tr>
<td>AWS Control Tower is now available in Asia Pacific</td>
<td>AWS Control Tower is now available to be deployed in the Asia Pacific (Sydney) AWS Region. This release requires manual updates to vended accounts, update only if you plan to run workloads in Asia Pacific (Sydney).</td>
<td>March 3, 2020</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Decommissioning an AWS Control Tower landing zone is possible</td>
<td>AWS Support can help you permanently decommission a landing zone through a mostly automated process that preserves your organization, although some manual cleanup is required.</td>
<td>February 27, 2020</td>
</tr>
<tr>
<td>Quick account provisioning is available in AWS Control Tower</td>
<td>Quick account provisioning makes it easier to launch new member accounts when your landing zone is up to date, with the <strong>Enroll account</strong> feature.</td>
<td>February 20, 2020</td>
</tr>
<tr>
<td>Lifecycle events are tracked in AWS Control Tower</td>
<td>Lifecycle events provide additional details for certain AWS Control Tower events, to make some workflow automation easier.</td>
<td>December 12, 2019</td>
</tr>
<tr>
<td>Settings and Activities pages are available for AWS Control Tower</td>
<td>The Settings and Activities pages make it easier to update your landing zone and to view logged events.</td>
<td>November 30, 2019</td>
</tr>
<tr>
<td>Additional preventive controls are available for AWS Control Tower</td>
<td>Preventive controls in AWS Control Tower keep your organization and resources aligned with your environment.</td>
<td>September 6, 2019</td>
</tr>
<tr>
<td>Additional detective controls are available for AWS Control Tower</td>
<td>Detective controls in AWS Control Tower give information about the state of your organization and resources.</td>
<td>August 27, 2019</td>
</tr>
</tbody>
</table>
AWS Control Tower is now generally available

AWS Control Tower is a service that offers the easiest way to set up and govern your multi-account AWS environment at scale.

June 24, 2019
# Tables of control metadata

This section contains tables that show the metadata for controls. Remember that each control has a unique API identifier for each Region in which AWS Control Tower is available. When you are working with the control APIs, provide the identifier for the Region in which you are making the API call.

The identifiers for mandatory controls are not shown in this table, because those controls cannot be turned on or turned off.

Last updated December 1, 2023.

## AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED | • CIS AWS Benchmark 1.4 2.1.1  
• NIST 800-53 Rev 5 AU-9  
• NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SC-7(10) | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td>PCI DSS version 3.2.1 10.5</td>
<td>RYPTION_ENABLED</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.2</td>
<td>PCI DSS version 3.2.1 2.2</td>
<td></td>
<td>US West (Oregon) arn:aws:controltower:us-west-2::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td>PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td>Canada (Central) arn:aws:controltower:ca-central-1::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::controlrol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_AUDIT_BUCKET_ENC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RPTION_EN</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltowerer:eu-north-1::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
<td></td>
<td>ontroltowerer:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>en:aws:controltowerer:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::controlrol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_AUDIT_BUCKET_ENC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RPTION_ENABLED</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltowerer:ap-south-1::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
<td></td>
<td>ontroltowerer:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>en:aws:controltowerer:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::controlrol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_AUDIT_BUCKET_ENC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RPTION_ENABLED</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltowerer:ap-nor</td>
<td></td>
<td>ontroltowerer:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>en:aws:controltowerer:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::controlrol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_AUDIT_BUCKET_ENC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>en:aws:controltowerer:eu-wes</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theaest-2: :control/ AWS-GR_AU DIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-nor theaest-1: :control/ AWS-GR_AU DIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Paris) arn:aws:controltower:eu-west-3::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>South America (São Paulo) arn:aws:controltower:sa-east-1::control/</td>
</tr>
</tbody>
</table>

AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G R_AUDIT_B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_AU DIT_BUCKET T_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/AWS-GR_AU DIT_BUCKET T_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>--------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CRYPTOION_ENABLED</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1:control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1:control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2:control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
</tbody>
</table>

AWS-GR_AUDIT_BUCKET_ENCRYPTION_ENABLED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED | • CIS AWS Benchmark 1.4 3.6  
• NIST 800-53 Rev 5 AC-2(4)  
• NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AC-6(9)  
• NIST 800-53 Rev 5 AU-10  
• NIST 800-53 Rev 5 AU-12  
• NIST 800-53 Rev 5 AU-2  
• NIST 800-53 Rev 5 AU-3 | • Establish logging and monitoring | arn:aws:controltower:ap-southeast-4:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED  
arn:aws:controltower:us-east-1:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED  
arn:aws:controltower:us-east-2:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>- NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**• US West (Oregon)**
arn:aws:controltower:us-west-2::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED

**• Canada (Central)**
arn:aws:controltower:ca-central-1::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED

**• Asia Pacific (Sydney)**
arn:aws:controltower:ap-southeast-2::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-2::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>AWS-GR AU</td>
<td>DIT_BUCKET_LOGGING_ENABLED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/AWS-GR_AU_DIT_BUCKET_LOGGING_ENABLED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowell</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-west-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowell</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-east-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowell</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-3:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Asia Pacific (Hyderabad)**
  - arn:aws:controltower:ap-south-2::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED

- **Middle East (UAE)**
  - arn:aws:controltower:me-central-1::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED

- **Asia Pacific (Melbourne)**
  - arn:aws:controltower:ap-southeast-4::control/AWS-GR_AUDIT_BUCKET_LOGGING_ENABLED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_Audit_Bucket_Policy_Changes_Prohibited | • NIST 800-53 Rev 5 CM-2  
• NIST 800-53 Rev 5 CM-2(2)  
• NIST 800-53 Rev 5 CM-3  
• NIST 800-53 Rev 5 CM-3(8)  
• NIST 800-53 Rev 5 SA-8(19) | • Protect data integrity | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_POLICY_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CHANGES_P</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ROHIBITED</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</strong></td>
</tr>
</tbody>
</table>

- **Europe (London)**
  - `arn:aws:controltower:eu-west-2::control/AWS-GRAUDIT_BUCKET_POLICY_CHANGES_PROHIBITED`

- **Europe (Stockholm)**
  - `arn:aws:controltower:eu-northeast-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED`

- **Asia Pacific (Mumbai)**
  - `arn:aws:controltower:ap-southeast-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G R_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/AWS-G R_AUDIT_BUCKET_POLICY_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/AWS-G R_AUDIT_BUCKET_POLICY_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:as-east-1::control/AWS-G R_AUDIT_BUCKET_POLICY_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CHANGES_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-east-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (Bahrain) arn:aws:controltower:me-south-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
</tbody>
</table>

AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1:control/AWS-GR_AUDIT_BUCKET_POLICY_CHANGES_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4:control/AWS-GR_AU</td>
</tr>
</tbody>
</table>
## AWS-GR_AUDIT_BUCKET_RETENTION_POLICY

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong> arn:aws:controltower:us-west-2:control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1:control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2:control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
</tbody>
</table>

AWS-GR_AUDIT_BUCKET_RETENTION_POLICY
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:ap-southeast-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_AUDIT_B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BUCKET_RETENTION_POLICY</td>
</tr>
</tbody>
</table>

- **Europe (Stockholm)** `arn:aws:controltower:eu-north-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY`

- **Asia Pacific (Mumbai)** `arn:aws:controltower:ap-south-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY`

- **Asia Pacific (Seoul)** `arn:aws:controltower:ap-northeast-2:control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_AU DIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/AWS-GR_AU DIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UCEKT_RET ENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-central-2::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower eu-south-2::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-south-2::control/AWS-GR_AUDIT_BUCKET_RETENTION_POLICY</td>
</tr>
</tbody>
</table>
## AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-t-1:control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td>R_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2: control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_AU TOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1: control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_AU TOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/AWS-GR_AUTO_SCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1:control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
</tbody>
</table>

- **Asia Pacific (Hong Kong)**: `arn:aws:controltower:ap-east-1::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED`
- **Europe (Milan)**: `arn:aws:controltower:eu-south-1::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED`
- **Africa (Cape Town)**: `arn:aws:controltower:af-south-1::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-2::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/AWS-GR_AUTOSCALING_LAUNCH_CONFIG_PUBLIC_IP_DISABLED</td>
</tr>
</tbody>
</table>
### AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS | • NIST 800-53 Rev 5 AC-2(4)  
• NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AC-6(9)  
• NIST 800-53 Rev 5 AU-10  
• NIST 800-53 Rev 5 AU-12  
• NIST 800-53 Rev 5 AU-14(1)  
• NIST 800-53 Rev 5 AU-2  
• NIST 800-53 Rev 5 AU-3  
• NIST 800-53 Rev 5 AU-6(3)  
• NIST 800-53 Rev 5 AU-6(4)  
• NIST 800-53 Rev 5 AU-9  
• NIST 800-53 Rev 5 CA-7  
• NIST 800-53 Rev 5 SA-8(22) | • Establish logging and monitoring | • US East (N. Virginia)  
earn:aws:controltower:us-east-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS  
• US East (Ohio)  
earn:aws:controltower:us-east-2::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS  
• US West (Oregon)  
earn:aws:controltower:us-west-2::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>R_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.2.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada (Central)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td>er:ap-south-est-1:control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.5.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.5.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-northeast-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/AWS-G</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>R_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/.AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                   | • **Europe (Milan)**
|                    |           |                   |     arn:aws:controltower:eu-south-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS |
|                    |           |                   | • **Africa (Cape Town)**
|                    |           |                   |     arn:aws:controltower:af-south-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS |
|                    |           |                   | • **Middle East (Bahrain)**
<p>|                    |           |                   |     arn:aws:controltower:me-south-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>D_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_CLOUDTRAIL_IL_ENABLE_D_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (UAE) arn:aws:controltower:me-central-1::control/AWS-GR_DETECT_CLOUDTRAIL_IL_ENABLE_D_ON_MEMBER_ACCOUNTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Melbourne) arn:aws:controltower:ap-south-2::control/AWS-GR_DETECT_CLOUDTRAIL_IL_ENABLE_D_ON_MEMBER_ACCOUNTS</td>
</tr>
</tbody>
</table>

**AWS-GR_DETECT_CLOUDTRAIL_ENABLED_ON_MEMBER_ACCOUNTS**
## AWS-GR_DISALLOW_CROSS_REGION_NETWORKING

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
<td>None</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>W_CROSS_REGION_NET WORKING</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
</tbody>
</table>

**AWS-GR_DISALLOW_CROSS_REGION_NETWORKING**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSS_REGION_N_NETWORKING</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
<td></td>
</tr>
<tr>
<td>OSS_REGION_N_NETWORKING</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
<td></td>
</tr>
<tr>
<td>OSS_REGION_N_NETWORKING</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-2:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-1:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-west-3:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-2:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-1:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-west-3:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-2:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-1:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-west-3:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-2:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-1:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-west-3:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-2:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-1:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-west-3:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-2:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-1:control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
</tbody>
</table>
|                    |           |                   | ontro
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:sa-east-1::control/AWS-G-R_DISALLOW_CROSS_REGION_NETWORKING_WORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/AWS-G-R_DISALLOW_CROSS_REGION_NETWORKING_WORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/AWS-G-R_DISALLOW_CROSS_REGION_NETWORKING_WORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-1::control/AWS-G-R_DISALLOW_CROSS_REGION_NETWORKING_WORKING</td>
</tr>
</tbody>
</table>

AWS-GR_DISALLOW_CROSS_REGION_NETWORKING 2636
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_DI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SALLOW_CR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>GR_DISALLOW_OW_CROSS_REGION_NETWORKING</td>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_DISALLOW_OW_CROSS_REGION_NETWORKING</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/AWS-GR_DISALLOW_OW_CROSS_REGION_NETWORKING</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_DISALLOW_OW_CROSS_REGION_NETWORKING</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/AWS-GR_DISALLOW_CROSS_REGION_NETWORKING</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Control objective:** Limit network access

**Control API identifiers, by Region**

- **Asia Pacific (Melbourne)**
  arn:aws:controltower:ap-southeast-4::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS

- **US East (N. Virginia)**
  arn:aws:controltower:us-east-1::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS

- **US East (Ohio)**
  arn:aws:controltower:us-east-2::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td>rol/AWS-G R_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>rol/AWS-G R_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>rol/AWS-G R_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>rol/AWS-G R_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>rol/AWS-G R_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>rol/AWS-G R_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>rol/AWS-G R_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.3</td>
<td></td>
<td></td>
<td>rol/AWS-G R_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>rol/AWS-G R_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>rol/AWS-G R_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
</tbody>
</table>

- **US West (Oregon)**
  - arn:aws:controltower:us-west-2::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS

- **Canada (Central)**
  - arn:aws:controltower:ca-central-1::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS

- **Asia Pacific (Sydney)**
  - arn:aws:controltower:ap-southeast-2::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>C_INTERNAL T_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/AWS-GR_DISALLOW_VPC INTERNET_ACCESS</td>
</tr>
<tr>
<td>Europe (Frankfurt)</td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_DISALLOW_VPC INTERNET_ACCESS</td>
<td></td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_DISALLOW_VPC INTERNET_ACCESS</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor-th-1::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-2:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-1:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-west-3:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>sa-east-1:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
</tbody>
</table>

- **Asia Pacific (Tokyo)**
  arn:aws:controltower:ap-northeast-2:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS

- **Europe (Paris)**
  arn:aws:controltower:eu-west-3:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS

- **South America (São Paulo)**
  arn:aws:controltower:sa-east-1:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>rol/AWS-G R_DISALLOW_W_VPC_INTERNET_ACCESS</td>
<td>Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-east-1:control/AWS-G R_DISALLOW_W_VPC_INTERNET_ACCESS</td>
<td></td>
</tr>
<tr>
<td>rol/AWS-G R_DISALLOW_W_VPC_INTERNET_ACCESS</td>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East</strong> (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_Disallow_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:es-central-1::control/AWS-GR_Disallow_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-south-2::control/AWS-GR_DISALLOW_VPC_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| AWS-GR_DISALLOW_VPN_CONNECTIONS | None | • Limit network access | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_DISALLOW_VPN_CONNECTIONS  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AWS-GR_DISALLOW_VPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AWS-GR_DISALLOW_VPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AWS-GR_DISALLOW_VPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AWS-GR_DISALLOW_VPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CONNECTIONS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>W_VPN_CONNECTIONS</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu:north-1::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:aws:controltower:ap-northeast-1::control/<strong>AWS-GR_DISALLOW_VPN_CONNECTIONS</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:aws:controltower:eu-west-3::control/<strong>AWS-G-R_DISALLOW_VPN_CONNECTIONS</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:aws:controltower:sa-east-1::control/<strong>AWS-G-R_DISALLOW_VPN_CONNECTIONS</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:aws:controltower:us-west::control/<strong>AWS-G-R_DISALLOW_VPN_CONNECTIONS</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/AWS-G R_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-tel-aviv::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:il-central-1::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-central-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-south-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-south-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS</td>
</tr>
</tbody>
</table>

- **Europe (Zurich)**
  - arn:aws:controltower:eu-central-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS

- **Europe (Spain)**
  - arn:aws:controltower:eu-south-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS

- **Asia Pacific (Hyderabad)**
  - arn:aws:controltower:ap-south-2::control/AWS-GR_DISALLOW_VPN_CONNECTIONS
### Control identifier | Framework | Control objective | Control API identifiers, by Region
---|---|---|---

**OW_VPN_CONNECTIONS**

- **Middle East (UAE)**
  - arn:aws:controltower:me-central-1::control/AWS-GR_DISALLOW_VPN_CONNECTIONS

- **Asia Pacific (Melbourne)**
  - arn:aws:controltower:ap-southeast-4::control/AWS-GR_DISALLOW_VPN_CONNECTIONS

---

### AWS-GR_DMS_REPLICATION_NOT_PUBLIC

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| **AWS-GR_DMS_REPLICATION_NOT_PUBLIC** | - NIST 800-53 Rev 5 AC-21  
- NIST 800-53 Rev 5 AC-3 | - Limit network access | - **US East (N. Virginia)**
  - arn:aws:controltower:us-east-2::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>er:us-east-1::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>ON_NOT_PUBLIC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/AWS-GR_DM S_REPLICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AWS-GR_DM S_REPLICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/AWS-GR_DMS_REP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control/AWS-GR_DMS_REP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/AWS-GR_DMS_REP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-1::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/AWS-GR_DMS_REPLICATION_NOT_PUBLIC</td>
</tr>
</tbody>
</table>

AWS-GR_DMS_REPLICATION_NOT_PUBLIC
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_DMS_REPLICATION_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(São Paulo) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:sa-eas:t-1:control:AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_DMS_REPLICATION_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_DMS_REPLICATION_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:ap-eas:t-1:control:AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_DMS_REPLICATION_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NOT_PUBLIC</td>
</tr>
</tbody>
</table>
### AWS-GR_EBS_OPTIMIZED_INSTANCE

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_EBS_OPTIMIZED_INSTANCE | • NIST 800-53 Rev 5 CP-10  
• NIST 800-53 Rev 5 CP-9  
• NIST 800-53 Rev 5 SC-5(2) | • Improve availability | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AWS-GR_EBS_OPTIMIZED_INSTANCE |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_EBS_OPTIMIZED_INSTANCE</td>
</tr>
</tbody>
</table>

- **US West (Oregon)**
  arn:aws:controltower:us-west-2::control/AWS-G R_EBS_OPTIMIZED_INSTANCE

- **Canada (Central)**
  arn:aws:controltower:ca-central-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE

- **Asia Pacific (Sydney)**
  arn:aws:controltower:ap-southeast-2::control/AWS-GR_EBS_OPTIMIZED_INSTANCE

- **Asia Pacific (Singapore)**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

- **Europe (Frankfurt)**
  - `arn:aws:controltower:eu-central-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE`

- **Europe (Ireland)**
  - `arn:aws:controltower:eu-west-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE`

- **Europe (London)**
  - `arn:aws:controltower:eu-west-2::control/AWS-GR_EBS_OPTIMIZED_INSTANCE`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-2::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
</tbody>
</table>

IMIZED_INSTANCE
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltow er:ap-northeast-1:control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltow er:eu-west-3::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltow er:sa-east-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltow er:us-west-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
</tbody>
</table>

- **Europe (Paris)**
  - arn:aws:controltower:eu-west-3::control/AWS-GR_EBS_OPTIMIZED_INSTANCE

- **South America (São Paulo)**
  - arn:aws:controltower:sa-east-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE

- **US West (N. California)**
  - arn:aws:controltower:us-west-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>R_EBS_OPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMPORIZED_INSTANCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Hong Kong)</strong></td>
<td>arn:aws:controltower:ap-east-1::control/AWS-G</td>
<td>AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Jakarta)</strong></td>
<td>arn:aws:controltower:ap-southeast-3::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Osaka)</strong></td>
<td>arn:aws:controltower:ap-northeast-3::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AWS-GR_EBS_OPTIMIZED_INSTANCE</td>
</tr>
</tbody>
</table>
### AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7) | • Limit network access  
• Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td>R_EBS_SNA PSHOT_PUB LIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/AWS-G R_EBS_SNA PSHOT_PUB LIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/AWS-G R_EBS_SNA PSHOT_PUB LIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2672
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>STORABLE_CHECK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td>Europe (Stockholm)</td>
<td></td>
<td>arn:aws:controltower:eu-nor:1:control/rol/AWS-G R_EBS_SNAPSHOT_PUBLICATION_PUBLISHABLE_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BLIC_REST ORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/AWS-GR_EBS_SNAPSHOT_PUBLIC_RESTORABLE_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>RESTORABLE E_CHECK</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20)  
• NIST 800-53 Rev 5 SC-7(21) | • Limit network access | • US East (N. Virginia)  
ar:n:aws:controltower:us-east-1::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP  
• US East (Ohio)  
ar:n:aws:controltower:us-east-2::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP  
• US West (Oregon)  
ar:n:aws:controltower:us-west-2::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>rol/AWS-G R_EC2_INS TANCE_NO_ PUBLIC_IP</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Canada (Central)**
  - arn:aws:controltower:ca-central-1::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP

- **Asia Pacific (Sydney)**
  - arn:aws:controltower:ap-southeast-2::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP

- **Asia Pacific (Singapore)**
  - arn:aws:controltower:ap-southeast-1::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>E_NO_PUBLIC_IC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south:th-1::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>2_INSTANC E_NO_PUBL IC_IP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3::control/AWS-G R_EC2_INSTANCE NO_PUBLIC_IP</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1::control/AWS-G R_EC2_INSTANCE NO_PUBLIC_IP</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1::control/AWS-G R_EC2_INSTANCE NO_PUBLIC_IP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>trol/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:**aws:controltower:ap-south-2:control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:**aws:**controltower:me-central-1:control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:**aws:**controltower:ap-southeast-4:control/AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP</td>
</tr>
</tbody>
</table>

AWS-GR_EC2_INSTANCE_NO_PUBLIC_IP 2687
## AWS-GR_EC2_VOLUME_INUSE_CHECK

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_EC2_VOLUME_INUSE_CHECK | • NIST 800-53 Rev 5 CA-9(1)  
   • NIST 800-53 Rev 5 CM-2  
   • NIST 800-53 Rev 5 CM-2(2)  
   • PCI DSS version 3.2.1 2.4 | • Optimize costs | • US East (N. Virginia)  
   arn:aws:controltower:us-east-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK  
• US East (Ohio)  
   arn:aws:controltower:us-east-2::control/AWS-GR_EC2_VOLUME_INUSE_CHECK  
• US West (Oregon)  
   arn:aws:controltower:us-west-2::control/AWS-GR_EC2_VOLUME_INUSE_CHECK  
• Canada (Central)  
   arn:aws:controltower:ca-central-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ca-central-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>S-GR_EC2_VOLUME_IN</td>
<td>Europe (Ireland)</td>
<td>Arn:aws:controltower:eu-wes-t-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
<td></td>
</tr>
<tr>
<td>VOLUME_INUSE_CHECK</td>
<td>Europe (London)</td>
<td>Arn:aws:controltower:eu-wes-t-2::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>Arn:aws:controltower:eu-nor-th-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>Arn:aws:controltower:eu-nor-th-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2690</td>
<td>Asia Pacific (Mumbai)</td>
<td>Arn:aws:controltower:eu-nor-th-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-south-1:control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:ap-northeast-1:control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
</tbody>
</table>
|                    |           |                  | arn:aws:controltowerer:eu-west-3:control/AWS-GR_EC2_VOL
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>UME_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-GR_EC2_VOL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-GR_EC2_VOL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/AWS-GR_EC2_VOL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UME_INUSE_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/AWS-GR_EC2_VOLUM_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>GR_EC2_VO LUME_INUSE_CHECK</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-south-2::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE) arn:aws:controltower:me-central-1::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/AWS-GR_EC2_VOLUME_INUSE_CHECK</strong></td>
</tr>
</tbody>
</table>
### AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20)  
• NIST 800-53 Rev 5 SC-7(21) | • Limit network access | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>ontroltower:us-west-2:control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>ontroltower:ca-central-1:control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>ontroltower:ap-southeast-2:control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>ontroltower:ap-northeast-1:control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/AWS-GR_EK_S_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1:control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>T_NO_PUBLIC_ACCESS</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/AWS-GR_EKS_ENDPOINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>PUBLIC_ACCESS</td>
<td></td>
<td></td>
<td>AWS-GR_Elasticsearch_in_VPC_ONLY</td>
</tr>
<tr>
<td>Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-east-1::control/AWS-GR_EKS_END POINT_NO_PUBLIC_ACCESS</td>
<td>Limit network access</td>
<td>arn:aws:controltower:ap-east-1::control/AWS-GR_EKS_END POINT_NO_PUBLIC_ACCESS</td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-east-1::control/AWS-GR_EKS_END POINT_NO_PUBLIC_ACCESS</td>
<td>Limit network access</td>
<td>arn:aws:controltower:me-south-east-1::control/AWS-GR_EKS_END POINT_NO_PUBLIC_ACCESS</td>
</tr>
</tbody>
</table>

**AWS-GR_Elasticsearch_in_VPC_ONLY**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td>er:us-eas</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td>t:1::cont</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td>R_ELASTIC</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td>SEARCH_IN</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td>_VPCONLY</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio) arn:aws:c ontroltower</td>
<td></td>
<td></td>
<td>er:us-eas</td>
</tr>
<tr>
<td>• US West (Oregon) arn:aws:c ontroltower</td>
<td></td>
<td></td>
<td>t:2::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_ELASTIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SEARCH_IN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_VPCONLY</td>
</tr>
<tr>
<td>• Canada (Central) arn:aws:c ontroltower</td>
<td></td>
<td></td>
<td>er:ca-cen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tral-1::c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrol/AWS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GR_ELAS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>TICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southwest-2:control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/AWS-GR_ELASTICSEARCH_IN_VPCONLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/AWS-GR_ELASTICSEARCH_IN_VPCONLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor-th-1::control/AWS-GR_ELASTICSEARCH_IN_VPCONLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-th-1::control/AWS-GR_ELASTICSEARCH_IN_VPCONLY</td>
</tr>
</tbody>
</table>

AWS-GR_ELASTICSEARCH_IN_VPC_ONLY
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>aws-controltower:aws-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-2:control/aws-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-1:control/aws-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong>&lt;br&gt;arn:aws:controltower:eu-west-3:control/aws-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>• South America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>• Asia Pacific (Hong</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower.eu-south-1:control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1:control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1:control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1:control/AWS-GR_ELASTICSEARCH_IN_VPC_ONLY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------</td>
<td>----------------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
<td></td>
<td>Limit network access</td>
<td>TICSEARCH_IN_VPC_ONLY</td>
</tr>
</tbody>
</table>

**AWS-GR_EMR_MASTER_NO_PUBLIC_IP**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
<td></td>
<td>Limit network access</td>
<td>US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td>rol/AWS-G R_EMR_MASTER_NO_PUBLIC_IP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
</tbody>
</table>

AWS-GR_EMR_MASTER_NO_PUBLIC_IP
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>t-1::controltower:/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
<td>• Middle East (Bahrain)</td>
<td>Encrypt data at rest</td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_EMR_MASTER_NO_PUBLIC_IP</td>
</tr>
<tr>
<td>AWS-GR_ENCRYPTED_VOLUMES</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>Encrypt data at rest</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-1::control/AWS-GR_ENCRYPTED_VOLUMUES</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>er:us-east</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>t-2::control</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>R_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>er:us-west</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>t-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ca-central</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>R_ENCRYPTED_VOLUMES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/AWS-GR_ENCRYPTED_VOLUMES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_ENCRYPTED_VOLUMES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_ENCRYPTED_VOLUMES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_ENCRYPTED_VOLUMES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1: control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_EN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu-west-3:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>sa-east-1:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>us-west-1:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>

AWS-GR_ENCRYPTED_VOLUMES 2717
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:me-south-1:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:eu-south-2:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4:control/AWS-GR_ENCRYPTED_VOLUMES</td>
</tr>
</tbody>
</table>
## AWS-GR_IAM_USER_MFA_ENABLED

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_IAM_USER_MFA_ENABLED | • NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-3(15)  
• NIST 800-53 Rev 5 IA-2(1)  
• NIST 800-53 Rev 5 IA-2(2)  
• NIST 800-53 Rev 5 IA-2(6)  
• NIST 800-53 Rev 5 IA-2(8)  
• PCI DSS version 3.2.1 8.3.1  
• PCI DSS version 3.2.1 8.3.2  
• PCI DSS version 3.2.1 8.6 | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_IAM_USER_MFA_ENABLED  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AWS-GR_IAM_USER_MFA_ENABLED  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/AWS-GR_IAM_USER_MFA_ENABLED  
• Canada (Central)  
arnd:aws:controltower:ca-central-1::control/AWS-GR_IAM_USER_MFA_ENABLED |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ontroltower</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>er:ca-central-1::c</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ontrol/AWS-GR_IAM_USER_MFA_ENABLED</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>er:ap-southeast-2:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ontrol/.AWS-GR_IAM_USER_MFA_ENABLED</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>er:ap-southeast-1:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ontrol/AWS-GR_IAM_USER_MFA_ENABLED</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>er:eu-central-1:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ontrol/AW</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>S-GR_IAM_USER_MFA_ENABLED</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_IAM_USER_MFA_ENABLED</td>
<td></td>
</tr>
<tr>
<td>S-GR_IAM_USER_MFA_ENABLED</td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/AWS-GR_IAM_USER_MFA_ENABLED</td>
<td></td>
</tr>
<tr>
<td>S-GR_IAM_USER_MFA_ENABLED</td>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-northeast-1::control/AWS-GR_IAM_USER_MFA_ENABLED</td>
<td></td>
</tr>
<tr>
<td>S-GR_IAM_USER_MFA_ENABLED</td>
<td>Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_IAM_USER_MFA_ENABLED</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                   | ontroltower:ap-south-1::control/AWS-GR_IAM_US
|                    |           |                   | ER_MFA_ENABLED
| • Asia Pacific (Seoul) |           |                   | arn:aws:controltower:ap-northeast-2::control/AWS-GR_IAM_USER_MFA_ENABLED
| • Asia Pacific (Tokyo) |           |                   | arn:aws:controltower:ap-northeast-1::control/AWS-GR_IAM_USER_MFA_ENABLED
<p>| • Europe (Paris) |           |                   | arn:aws:controltower:eu-west-3::control/AWS-G_R_IAM_USER_MFA_ENABLED |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_MFA_ENA BLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_IAM_USE R_MFA_ENA BLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_IAM_USE R_MFA_ENA BLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_IAM_USE R_MFA_ENA BLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong></td>
</tr>
</tbody>
</table>

**AWS-GR_IAM_USER_MFA_ENABLED**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
|                    |           |                  | **arn:aws:controltower:ap-southeast-3:**
|                    |           |                  | **:control/AWS-GR_IAM_USER_MFA_ENABLED** |
|                    |           |                  | **arn:aws:controltower:ap-northeast-3:**
|                    |           |                  | **:control/AWS-GR_IAM_USER_MFA_ENABLED** |
|                    |           |                  | **arn:aws:controltower:eu-south-1:**
|                    |           |                  | **:control/AWS-GR_IAMUSER_MFA_ENABLED** |
|                    |           |                  | **arn:aws:controltower:af-south-1:**
|                    |           |                  | **:control/AWS-GR_IAM_USER_MFA_ENABLED** |

- **Asia Pacific (Osaka)**
  - arn:aws:controltower:ap-southeast-3:control/AWS-GR_IAM_USER_MFA_ENABLED

- **Europe (Milan)**
  - arn:aws:controltower:eu-south-1:control/AWS-GR_IAMUSER_MFA_ENABLED

- **Africa (Cape Town)**
  - arn:aws:controltower:af-south-1:control/AWS-GR_IAM_USER_MFA_ENABLED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>GR_IAM_USER_MFA_ENABLED</td>
<td>• Middle East (Bahrain)</td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_IAM_USER_MFA_ENABLED</td>
</tr>
</tbody>
</table>

### AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6 | • Limit network access | • US East (N. Virginia)  
arncd:aws:controltower:us-east-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • NIST 800-53 Rev 5 SC-7 | | | • US East (Ohio)  
  arn:aws:controltower:us-east-2::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED |
| • NIST 800-53 Rev 5 SC-7(11) | | | |
| • NIST 800-53 Rev 5 SC-7(16) | | | |
| • NIST 800-53 Rev 5 SC-7(20) | | | |
| • NIST 800-53 Rev 5 SC-7(21) | | | |
| • NIST 800-53 Rev 5 SC-7(3) | | | • US West (Oregon)  
  arn:aws:controltower:us-west-2::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED |
| • NIST 800-53 Rev 5 SC-7(4) | | | |
| • NIST 800-53 Rev 5 SC-7(9) | | | |
| • PCI DSS version 3.2.1 1.2.1 | | | • Canada (Central)  
  arn:aws:controltower:ca-central-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED |
<p>| • PCI DSS version 3.2.1 1.3 | | | |
| • PCI DSS version 3.2.1 1.3.1 | | | |
| • PCI DSS version 3.2.1 1.3.2 | | | |
| • PCI DSS version 3.2.1 1.3.4 | | | |
| • PCI DSS version 3.2.1 2.2.2 | | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:europe-central-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>_ACCESS_PROHIBITED</td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-west-2::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-northeast-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>CCESS_PRO HIBITED</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MBDA_FUNCTION_PUBLICATION_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-southeast-2:control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>th-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv) arn:aws:controltower</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:il-central-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS | • CIS AWS Benchmark 1.4 1.10  
• NIST 800-53 Rev 5 AC-2(1) | • Enforce least privilege | • US East (N. Virginia)  
ar:n:aws:controltower:us-east-1:control/AWS-GR_LAMBDA_FUNCTION_PUBLIC_ACCESS_PROHIBITED |

**AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
<td>t-1::controltower:AWS-G R_MFA_ENA BLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 IA-2(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 IA-2(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 IA-2(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 IA-2(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::controltower:AWS-G R_MFA_ENA BLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::controltower:AWS-G R_MFA_ENA BLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::controltower:AWS-GR_MFA_ ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_IAM_CONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/AWS-GR_MF_A_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_MF_A_ENABLED</td>
</tr>
</tbody>
</table>

AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS 2739
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/AWS-GR_MFA_ENABLED</td>
</tr>
</tbody>
</table>

AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_MFA_ENABLED_FOR_IAM_CONSOLE_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td>Limit network access</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CM-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td>rol/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Canada (Central)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_UNRESTRICTED_ROUT_E_TO_IGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-west-3::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-north-1:control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-south-1:control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-1: :control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>R_NO_UNRESTRICTED ROUTE_TO_IGW</td>
<td>Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-east-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:me-south-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</code></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:il-central-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</code></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-central-2::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</code></td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:me-central-1::control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
</tr>
<tr>
<td>• Asia Pacific (Melbourne)</td>
<td>arn:aws:controltower:ap-southeast-4:control/AWS-GR_NO_UNRESTRICTED_ROUTE_TO_IGW</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
<td>• NIST 800-53 Rev 5 AC-21&lt;br&gt;• NIST 800-53 Rev 5 AC-3&lt;br&gt;• NIST 800-53 Rev 5 AC-3(7)</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1:control/AWS-G</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td>R_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• US East (Ohio)

arn:aws:controltower:us-east-2::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK

• US West (Oregon)

arn:aws:controltower:us-west-2::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK

• Canada (Central)

arn:aws:controltower:ca-central-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td>PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-2::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor-th-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::controller/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::controller/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::controller/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-east-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3:control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-south-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:il-central-1::control/AWS-GR_RDS.INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
</tbody>
</table>

AWS-GR_RDS_INSTANCE_PUBLIC_ACCESS_CHECK
2758
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
<td>NIST 800-53 Rev 5 AC-21</td>
<td>Limit network access</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td>BLIC_PROHIBITED</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>US West (Oregon) arn:aws:controltower:us-west-2::control/AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>Canada (Central) arn:aws:controltower:ca-central-1::control/AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/AWS-GR_RD_S_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/AWS-GR_RD_S_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control rol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_RDS_SNAPSHOTSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-nor th-1::control/AWS-GR_RDS_SNAPSHOTSHOTS_PUBLIC_PROHIBITED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-sou th-1::control/AWS-GR_RDS_SNAPSHOTSHOTS_PUBLIC_PROHIBITED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-nor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-2: :control/ AWS-GR_RD S_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1: :control/ AWS-GR_RD S_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3: :control/AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1: :control/AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G R_RDS_SNA PSHOTS_PU BLIC_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/AWS-G_R_RDS_SNA_PSHOTS_PU_BLIC_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/AWS-G_R_RDS_SNA_PSHOTS_PU_BLIC_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/AWS-G_R_RDS_SNA_PSHOTS_PU_BLIC_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GR_RDS_SN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>APSHOTS_P</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PUBLIC_PRO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/AWS-GR_RDS_SNAPSHOTS_PUBLIC_PROHIBITED</td>
</tr>
</tbody>
</table>
# AWS-GR_RDS_STORAGE_ENCRYPTED

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_RDS_STORAGE_ENCRYPTED | • CIS AWS Benchmark 1.4 2.3.1  
• NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SC-7(10)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 3.4  
• PCI DSS version 3.2.1 8.2.1 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_RDS_STORAGE_ENCRYPTED |  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AWS-GR_RDS_STORAGE_ENCRYPTED |  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/AWS-GR_RDS_STORAGE_ENCRYPTED |  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/AWS-GR_RDS_STORAGE_ENCRYPTED |  
• PCI DSS version 3.2.1 3.4  
• PCI DSS version 3.2.1 8.2.1 |  
<p>| | | | |
|                    |           |                  |  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower::ca-central-1::control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower::ap-southeast-2::control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower::ap-southeast-1::control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower::eu-central-1::control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1:control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-south-1:control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/AWS-G R_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>RAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/AWS-G-R_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/AWS-G-R_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1:control/AWS-G-R_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
</tbody>
</table>

AWS-GR_RDS_STORAGE_ENCRYPTED

2770
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td>ARN:AWS:CONTROLTOWER:ME-CENTRAL-1::CONTROL/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Melbourne)</td>
<td>ARN:AWS:CONTROLTOWER:AP-SOUTH-EAST-4::CONTROL/AWS-GR_RDS_STORAGE_ENCRYPTED</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td>R_REDSHIFT T_CLUSTER_PUBLIC_Access_Chek</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US East (Ohio)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US West (Oregon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada (Central)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R_REDSHIFT T_CLUSTER_PUBLIC_ACCESS_CHECK

arn:aws:controltower:us-east-2::control/AWS-G

R_REDSHIFT T_CLUSTER_PUBLIC_ACCESS_CHECK

arn:aws:controltower:us-west-2::control/AWS-G

R_REDSHIFT T_CLUSTER_PUBLIC_ACCESS_CHECK

arn:aws:controltower:ca-central-1::control/AWS-G

R_REDSHIFT T_CLUSTER_PUBLIC_ACCESS_CHECK
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td>Asia Pacific (Sydney)</td>
<td>C_ACCESS_CHECK</td>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td>Asia Pacific (Singapore)</td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td>Europe (Frankfurt)</td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HIFT_CLUSTER_TER_PUBLIC_C_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-1:control/role/AWS-GR_REDSHIFT_CLUSTERT_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-2:control/role/AWS-GR_REDSHIFT_CLUSTERT_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor-th-1:control/role/AWS-GR_REDSHIFT_FT_CLUSTER PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>R_PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Mumbai)</strong></td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Seoul)</strong></td>
<td>arn:aws:controltower:ap-northeast-2:control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Tokyo)</strong></td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>USTER_PUB LIC_ACCESS S_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-GR_REDSHIFT_CLUSTER_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-GR_REDSHIFT_CLUSTER_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-GR_REDSHIFT_CLUSTER_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_CLUSTER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_CLUSTER</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_REDSHIFT_CLUSTER_PUBLIC_ACCESS_CHECK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> <code>arn:aws:controltower:me-central-1::control/AWS-GR_REGION_DENY</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> <code>arn:aws:controltower:ap-southeast-4::control/AWS-GR_REGION_DENY</code></td>
</tr>
</tbody>
</table>

**AWS-GR_REGION_DENY**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS-GR_REGION_DENY</td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td>• Protect configurations</td>
<td>• <strong>US East (N. Virginia)</strong> <code>arn:aws:</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td>AC-4(21)</td>
<td></td>
<td></td>
<td>:us-east:t-1::control</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>:AWS-G</td>
</tr>
<tr>
<td>AC-6</td>
<td></td>
<td></td>
<td>R_REGION_DENY</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>US East (Ohio)</td>
</tr>
<tr>
<td>SC-7</td>
<td></td>
<td></td>
<td>arn:aws:c controltower</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>:us-east:t-2::control</td>
</tr>
<tr>
<td>SC-7(11)</td>
<td></td>
<td></td>
<td>:AWS-G</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>R_REGION_DENY</td>
</tr>
<tr>
<td>SC-7(16)</td>
<td></td>
<td></td>
<td>US West (Oregon)</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>arn:aws:c controltower</td>
</tr>
<tr>
<td>SC-7(20)</td>
<td></td>
<td></td>
<td>:us-west:t-2::control</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>:AWS-G</td>
</tr>
<tr>
<td>SC-7(21)</td>
<td></td>
<td></td>
<td>R_REGION_DENY</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>Canada (Central)</td>
</tr>
<tr>
<td>SC-7(3)</td>
<td></td>
<td></td>
<td>arn:aws:c controltower</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>:ca-central-1::control</td>
</tr>
<tr>
<td>SC-7(4)</td>
<td></td>
<td></td>
<td>:AWS-G</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>R_REGION_DENY</td>
</tr>
<tr>
<td>SC-7(9)</td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td>arn:aws:c controltower</td>
</tr>
<tr>
<td>3.2.1 7.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-southeast-2:control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-southeast-1:control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower:eu-west-1:control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-west-1:control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2783</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-wes/t-2::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controller:eu-nor/th-1::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controller:ap-south-1::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controller:ap-northeast-2::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controller:ap-northeast-2::control/AWS-GR_REGION_DENY</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>GR_REGION_DENY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Africa (Cape Town)</strong></td>
<td>arn:aws:controltower:af-south-1::control/AWS-GR_REGION_DENY</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Middle East (Bahrain)</strong></td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_REGION_DENY</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Israel (Tel Aviv)</strong></td>
<td>arn:aws:controltower:il-central-1::control/AWS-GR_REGION_DENY</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Europe (Zurich)</strong></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_REGION_DENY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/AWS-GR_REGION_DENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-east-4::control/AWS-GR_REGION_DENY</td>
</tr>
</tbody>
</table>
# AWS-GR_RESTRICTED_COMMON_PORTS

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td>AWS Control Tower</td>
<td></td>
<td>t-2:control/AWS-G R_RESTRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Canada (Central)**
  - arn:aws:controltower:ca-central-1:control/AWS-GR_RESTRICTED_COMMON_PORTS

- **Asia Pacific (Sydney)**
  - arn:aws:controltower:ap-southeast-2:control/AWS-GR_RESTRICTED_COMMON_PORTS

- **Asia Pacific (Singapore)**
  - arn:aws:controltower:ap-southeast-1:control/AWS-GR_RESTRICTED_COMMON_PORTS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>STRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/AWS-GR_RESTRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/AWS-GR_RESTRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/AWS-GR_RESTRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>th-1::control/AWS-GR_RESTRICTEDCOMMON_PORTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_RESTRICTEDCOMMON_PORTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_RESTRICTEDCOMMON_PORTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/AWS-GR_RESTRICTEDCOMMON_PORTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-G R_RESTRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-G R_RESTRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-G R_RESTRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-G R_RESTRICTED_COMMON_PORTS</td>
</tr>
</tbody>
</table>

AWS-GR_RESTRICTED_COMMON_PORTS 2793
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/AWS-GR_RESTRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td>• Middle East</td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower me-south-1:control/AWS-GR_RESTRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower ap-south-2:control/AWS-GR_RESTRICTED_COMMON_PORTS</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower ap-south-east-4:</td>
</tr>
</tbody>
</table>

AWS-GR_RESTRICTED_COMMON_PORTS
## AWS-GR_RESTRICTED_SSH

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_RESTRICTED_SSH | • CIS AWS Benchmark 1.4 5.2  
                        • NIST 800-53 Rev 5 AC-4  
                        • NIST 800-53 Rev 5 AC-4(21)  
                        • NIST 800-53 Rev 5 CM-7  
                        • NIST 800-53 Rev 5 SC-7  
                        • NIST 800-53 Rev 5 SC-7(11)  
                        • NIST 800-53 Rev 5 SC-7(16)  
                        • NIST 800-53 Rev 5 SC-7(21)  
                        • NIST 800-53 Rev 5 SC-7(4)  
                        • NIST 800-53 Rev 5 SC-7(5) | • Limit network access | 
|                     |           |                   | • US East (N. Virginia)  
                        arn:aws:controltower:us-east-1::control/AWS-GR_RESTRICTED_SSH  
                        • US East (Ohio)  
                        arn:aws:controltower:us-east-2::control/AWS-GR_RESTRICTED_SSH  
                        • US West (Oregon)  
                        arn:aws:controltower:us-west-2::control/AWS-GR_RESTRICTED_SSH |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>rol/AWS-G R_RESTRICTED_SSH</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_RESTRICTED_SSH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/AWS-GR_RESTRICTED_SSH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/AWS-GR_RESTRICTED_SSH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/AWS-GR_RESTRICTED_SSH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tral-1::control/AWS-GR_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/AWS-GR_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/AWS-GR_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control/AWS-GR_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:control/AWS-GR_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/AWS-GR_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:sa-east</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control:AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control:AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control:AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_RESTRICTED_SSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control:AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_RESTRICTED_SSH</td>
</tr>
</tbody>
</table>
# AWS-GR.Restrict.Root.User

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR.Restrict.Root.User | • NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-3(15)  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 AC-6(10)  
• PCI DSS version 3.2.1 2.2  
• PCI DSS version 3.2.1 7.1.1  
• PCI DSS version 3.2.1 7.1.2  
• PCI DSS version 3.2.1 7.2.1  
• PCI DSS version 3.2.1 7.2.2  
• PCI DSS version 3.2.1 8.1.1 | • Enforce least privilege | • US East (N. Virginia)  
• US East (Ohio)  
• US West (Oregon)  
• Canada (Central)  
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-2:control/AWS-GR_RESTRICT_ROOT_USER</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-1:control/AWS-GR_RESTRICT_ROOT_USER</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-central-1::control/AWS-GR_RESTRICT_ROOT_USER</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G R_RESTRICT T_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-G R_RESTRICT T_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/AWS-G R_RESTRICT T_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-norнтheast-3:控制/AWS-GR_RESTRUCT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1:control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1:control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::aws-control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::aws-control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::aws-control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::aws-control/AWS-GR_RESTRICT_ROOT_USER</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---
AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS | • CIS AWS Benchmark 1.4 1.4 • NIST 800-53 Rev 5 AC-2(1) | • Enforce least privilege | • US East (N. Virginia) arn:aws:controltower:us-east-2::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 AC-3(15)</td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td>NIST 800-53 Rev 5 AC-6</td>
<td>t-1::control/AWS-G R_RESTRICT T_ROOT_USER_ACCESS KEYS</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-6(10)</td>
<td>NIST 800-53 Rev 5 AC-6(2)</td>
<td>PCI DSS version 3.2.1 2.2</td>
<td>US East (Ohio) arn:aws:controltower:us-east t-2::control/AWS-G R_RESTRICT T_ROOT_USER_ACCESS KEYS</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.1.1</td>
<td>PCI DSS version 3.2.1 7.1.2</td>
<td>PCI DSS version 3.2.1 8.1.1</td>
<td>US West (Oregon) arn:aws:controltower:us-west t-2::control/AWS-G R_RESTRICT T_ROOT_USER_ACCESS KEYS</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.2.1</td>
<td>PCI DSS version 3.2.1 7.2.2</td>
<td>PCI DSS version 3.2.1 8.1.1</td>
<td>Canada (Central) arn:aws:controltower:ca-central t-1::control/AWS-G R_RESTRICT T_ROOT_USER_ACCESS KEYS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_USER_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-G R_RESTRICT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_ROOT_USER_ACCESS_KEY'S</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-G R_RESTRICT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_ROOT_USER_ACCESS_KEY'S</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-GR_RESTRICT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CT_ROOT_USER_ACCESS_KEY'S</td>
</tr>
</tbody>
</table>

AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEY'S 2810
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/.AWS-G.RESTRIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_ROOT_USER_ACCESS_KEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/.AWS-G.RESTRIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_ROOT_USER_ACCESS_KEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/.AWS-G.RESTRIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T_ROOT_USER_ACCESS_KEY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------------------</td>
<td>--------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-t-1:control/AWS-GR_RESTRICT_ROOT_USER_ACCESS KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/AWS-GR_RESTRICT_ROOT_USER_ACCESS KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/AWS-GR_RESTRICT_ROOT_USER_ACCESS KEYS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-south-1::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ontroltower</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>er:il-central-1::control/AWS-</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>S-GR_RESTRICT_ROOT_USER_ACCESS</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>S_KEYS</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-2::control/AWS-</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>S-GR_RESTRICT_ROOT_USER_ACCESS</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>S_KEYS</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:ap-south-2::control/AWS-</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>GR_RESTRICT_ROOT_USER_ACCESS</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>S_KEYS</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:ap-south</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-2::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (UAE) arn:aws:controltower:me-central-1::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/AWS-GR_RESTRICT_ROOT_USER_ACCESS_KEYS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
- NIST 800-53 Rev 5 CM-2(2)  
- NIST 800-53 Rev 5 CM-3  
- NIST 800-53 Rev 5 CM-3(8)  
- NIST 800-53 Rev 5 SA-8(19) | - Improve resiliency | • US East (N. Virginia)  
• US East (Ohio)  
• US West (Oregon)  
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>S_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>STRICT_S3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_CROSS_REGION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REPLICATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>S_REGION_REPLICATION</td>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1:control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southeast-2:control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:ap-northeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AWS-GR_RESTRICT_S3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:eu-west-3::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:sa-east-1::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-GR_RESTRIC_T_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/AWS-GR_RESTRIC_T_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>SS_REGION _REPLICATION</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ON_REPLICATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="#">ARN</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="#">ARN</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="#">ARN</a></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>ON_REPLICATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Melbourne)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-southeast-4:control/AWS-GR_RESTRICT_S3_CROSS_REGION_REPLICATION</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIS AWS Benchmark 1.4 2.1.3</td>
<td></td>
<td>Protect data integrity</td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CM-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US East (N. Virginia)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:us-east-1:control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east2::control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-12</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west2::control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-syd::control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-southeast-2:control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west:control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>t-1::control/.AWS-G_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
<td>Europe (London)</td>
<td>arn:aws:controltower.eu-west-2::control/.AWS-G_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
<td></td>
</tr>
<tr>
<td>t-1::control/.AWS-G_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower.eu-nord-1::control/.AWS-G_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
<td></td>
</tr>
<tr>
<td>t-1::control/.AWS-G_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
<td>Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower.ap-south-1::control/AWS-G_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>GR_RESTRICT_S3&gt;Delete_without_MFA</strong></td>
</tr>
</tbody>
</table>

- **Asia Pacific (Seoul)**
  - arn:aws:controltower:ap-northeast-2:control/AWS-GR_RESTRICT_S3_Delete_without_MFA

- **Asia Pacific (Tokyo)**
  - arn:aws:controltower:ap-northeast-1:control/AWS-GR_RESTRICT_S3_Delete_without_MFA

- **Europe (Paris)**
  - arn:aws:controltower:eu-west-3:control/AWS-GR_RESTRICT_S3_Delete_without_MFA
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>TE_WITHOUT T_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-G-R_RESTRICT_T_S3_DELETE_TE_WITHOUT_T_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AWS-G-R_RESTRICT_T_S3_DELETE_TE_WITHOUT_T_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/AWS-G-R_RESTRICT_T_S3_DELETE_TE_WITHOUT_T_MFA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TEWITHOUTT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
</tbody>
</table>
|                    |           |                   | arn:aws:controltower:ap-southeast-3:control/AWS-GR_RESTRIC
|                    |           |                   | strict_s3_delete_without_mfa      |
|                    |           |                   | • Asia Pacific (Osaka)            |
|                    |           |                   | arn:aws:controltower:ap-northeast-3:control/AWS-GR_RESTRIC
<p>|                    |           |                   | strict_s3_delete_without_mfa      |
|                    |           |                   | • Europe (Milan)                  |
|                    |           |                   | arn:aws:controltower:eu-south-1:control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ETE_WITHOUT_MFA</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/AWS-GR.Restrict_S3_Delete</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ETE_WITHOUT_MFA</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1:control/AWS-GR.Restrict_S3_Delete</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ETE_WITHOUT_MFA</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1:control/AWS-GR.Restrict_S3_Delete</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ETE_WITHOUT_MFA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA</td>
</tr>
</tbody>
</table>
## AWS-GR_ROOT_ACCOUNT_MFA_ENABLED

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
</tr>
</thead>
</table>
| AWS-GR_ROOT_ACCOUNT_MFA_ENABLED | • CIS AWS Benchmark 1.4 1.5  
• NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-3(15) |

### Control objective
- Enforce least privilege

### Control API identifiers, by Region
- • US East (N. Virginia)  
arun:aws:controltower:us-east-1::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED  
• Asia Pacific (Melbourne)  
arun:aws:controltower:ap-southeast-4::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED  
• Enforce least privilege

ontroltower:me-central-1::control/AWS-GR_RESTRICT_S3_DELETE_WITHOUT_MFA  
ontroltower:me-central-1::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 IA-2(1)</td>
<td></td>
<td></td>
<td>R_ROOT_AC COUNT_MFA _ENABLED</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 IA-2(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 IA-2(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 IA-2(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2: control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ctr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>olt:er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1: control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ctr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>olt:er:eu-central-1::ctr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ctr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>olt:er:eu-west-1::ctr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G Role/AWS-G Control Tower:eu-west-2::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G Role/AWS-G Control Tower:eu-north-1::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G Role/AWS-G Control Tower:ap-southeast-1::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
</tbody>
</table>

- **Europe (London)**
  - arn:aws:controltower:eu-west-2::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED
- **Europe (Stockholm)**
  - arn:aws:controltower:eu-north-1::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED
- **Asia Pacific (Mumbai)**
  - arn:aws:controltower:ap-southeast-1::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:ap-northeast-1:control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_ROOT_AC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>COUNT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_ROOT_AC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>COUNT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_ROOT_AC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>COUNT_MFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/</td>
</tr>
</tbody>
</table>

```javascript
AWS-GR_ROOT_ACCOUNT_MFA_ENABLED
```
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
<td></td>
<td></td>
<td>AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
</tbody>
</table>

- **Asia Pacific (Osaka)**
  - `arn:aws:controltower:ap-northeast-3::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED`

- **Europe (Milan)**
  - `arn:aws:controltower:eu-south-1::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED`

- **Africa (Cape Town)**
  - `arn:aws:controltower:af-south-1::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:controltower:eu-south-2::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td>arn:aws:controltower:ap-south</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AWS Control Tower User Guide
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>th-2::control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
<td>Asia Pacific (Melbourne)</td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4:control/AWS-GR_ROOT_ACCOUNT_MFA_ENABLED</td>
</tr>
<tr>
<td>AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
<td>CIS AWS Benchmark 1.4 2.1.5</td>
<td>Enforce least privilege</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1:control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-21</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td>_PUBLIC_ACCESS_BLOCS_PERIODIC</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td>CCESS_BLOCS_PERIODIC</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **US East (Ohio)**
  - `arn:aws:controltower:us-east-2::control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCS_PERIODIC`

- **US West (Oregon)**
  - `arn:aws:controltower:us-west-2::control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCS_PERIODIC`

- **Canada (Central)**
  - `arn:aws:controltower:ca-central-1::control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCS_PERIODIC`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>VEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::cloudcontrol/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:cloudcontrol:eu-west-1::cloudcontrol/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:cloudcontrol:eu-west-2::cloudcontrol/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:cloudcontrol:eu-north-1::cloudcontrol/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/AWS-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GR_S3_ACCOUNT:LEVEL_PUBLIC_A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CCES_BLISTICS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/AWS-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GR_S3_ACCOUNT:LEVEL_PUBLIC_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CCES_BLISTICS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2::control/AWS-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GR_S3_ACCOUNT:LEVEL_PUBLIC_</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CCES_BLISTICS_PERIODIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/AWS-G_R_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/AWS-G_R_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (N. California) arn:aws:controltower:us-west-1::control/AWS-G R_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/AWS-G R_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-1::control/AWS-G R_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCS_PERIODIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS_PERIODIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | ○ COUNT_LEVEL_PUBLIC_ACCESS_BLOCKS | Middle East (UAE) arn:aws:controltower:me-central-1::control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS
|                    |           |                  | ○ COUNT_LEVEL_PUBLIC_ACCESS_BLOCKS | Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/AWS-GR_S3_ACCOUNT_LEVEL_PUBLIC_ACCESS_BLOCKS
<p>|                    |           |                  | ○ COUNT_LEVEL_PUBLIC_ACCESS_BLOCKS |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED | • CIS AWS Benchmark 1.4 3.3  
• NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20)  
• NIST 800-53 Rev 5 SC-7(21)  
• NIST 800-53 Rev 5 SC-7(3)  
• NIST 800-53 Rev 5 SC-7(4) | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>_READ_PROHIBITED</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Canada (Central)**
ar.n:aws:controltower:ca-central-1::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED

- **Asia Pacific (Sydney)**
ar.n:aws:controltower:ap-southeast-2:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED

- **Asia Pacific (Singapore)**
ar.n:aws:controltower:ap-southeast-1:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
</tbody>
</table>

AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-2:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control rol/AWS-G R_S3_BUCKET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ET_PUBLIC _READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control rol/AWS-G R_S3_BUCKET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ET_PUBLIC _READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:ap-southeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:asia-east-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-3:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-1:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:controltower:af-south-1:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (Bahrain) arn:aws:controltower:me-south-1:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
</tbody>
</table>

AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED 2860
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>C_READ_PR PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Hyderabad)</td>
<td>arn:aws:controltower:ap-south-2:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle East (UAE)</td>
<td>arn:aws:controltower:me-central-1:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Melbourne)</td>
<td>arn:aws:controltower:ap-southeast-4:control/AWS-GR_S3_BUCKET_PUBLIC_READ_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED | • CIS AWS Benchmark 1.4 3.3  
• NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20) | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td>er:us-west-2::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>europe (Frankfurt) arn:aws:controltower:eu-central-1::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>europe (Ireland) arn:aws:controltower:eu-west-1::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>europe (London) arn:aws:controltower:eu-west-2::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) &lt;br&gt;arn:aws:controltower:eu-northeast-1::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) &lt;br&gt;arn:aws:controltower:ap-southeast-1::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) &lt;br&gt;arn:aws:controltower:ap-northeast-2::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_BUCKET_P PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/AWS-GR_S3 _BUCKET_P PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/AWS-GR_S3 _BUCKET_P PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AWS-GR_S3 _BUCKET_P PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **US West (N. California)**
  arn:aws:controltower:us-west-1::control/AWS-G
  R_S3_BUCK
  ET_PUBLIC
  _WRITE_PR
  OHIBITED

- **Asia Pacific (Hong Kong)**
  arn:aws:controltower:ap-east-1::control/AWS-G
  R_S3_BUCK
  ET_PUBLIC
  _WRITE_PR
  OHIBITED

- **Asia Pacific (Jakarta)**
  arn:aws:controltower:ap-southeast-3::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>_BUCKET_P</td>
<td>_PUBLIC_WRITE_PROHIBITED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td>(Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3:control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KET_PUBLIC_C_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>• Middle East</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Bahrain)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arn:aws:controltower:me-south-1::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arn:aws:controltower:il-central-1::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arn:aws:controltower:eu-central-2::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LIC_WRITE_PROHIBITED</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:controltower:eu-south-2::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td>arn:aws:controltower:ap-south-2::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td>arn:aws:controltower:me-central-1::control/AWS-GR_S3_BUCKET_PUBLIC_WRITE_PROHIBITED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------</td>
<td>------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AWS-GR_S3_VERSIONING_ENABLED</td>
<td></td>
<td>• Optimize costs</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/AWS-G R_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Improve availability</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CIS AWS Benchmark 1.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.1.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NIST 800-53 Rev 5 AU-9(2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------</td>
<td>-------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-9</td>
<td></td>
<td></td>
<td>t-2::control/AWS-GR_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west:</td>
<td></td>
<td>arn:aws:controltower:us-west:</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1:</td>
<td></td>
<td>arn:aws:controltower:ca-central-1:</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:</td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Asia Pacific (Singapore)**  
|                    |           |                  | arn:aws:controltower:ap-southeast-1:control/AWS-GR_S3_VERSIONING_ENABLED |
|                    |           |                  | • **Europe (Frankfurt)**  
|                    |           |                  | arn:aws:controltower:eu-central-1:control/AWS-GR_S3_VERSIONING_ENABLED |
|                    |           |                  | • **Europe (Ireland)**  
|                    |           |                  | arn:aws:controltower:eu-west-1:control/AWS-GR_S3_VERSIONING_ENABLED |
|                    |           |                  | • **Europe (London)**  
<p>|                    |           |                  | arn:aws:controltower:eu-west-2:control/AWS-GR_S3_VERSIONING_ENABLED |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/AWS-GR_S3_VERSIONING_ENABLED</td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_S3_VERSIONING_ENABLED</td>
<td></td>
<td>rol/AWS-G</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/AWS-GR_S3_VERSIONING_ENABLED</td>
<td></td>
<td>rol/AWS-G</td>
</tr>
</tbody>
</table>

AWS-GR_S3_VERSIONING_ENABLED
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/AWS-GR_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/AWS-GR_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/AWS-GR_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:us-west-1::control/AWS-GR_S3_VERSIONING_ENABLED</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-east-1::control/AWS-GR_S3_VERSIONING_ENABLED</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-3::control/AWS-GR_S3_VERSIONING_ENABLED</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-northeast-3::control/AWS-GR_S3_VERSIONING_ENABLED</code></td>
</tr>
</tbody>
</table>

- **Asia Pacific (Hong Kong)** `arn:aws:controltower:ap-east-1::control/AWS-GR_S3_VERSIONING_ENABLED` |
- **Asia Pacific (Jakarta)** `arn:aws:controltower:ap-southeast-3::control/AWS-GR_S3_VERSIONING_ENABLED` |
- **Asia Pacific (Osaka)** `arn:aws:controltower:ap-northeast-3::control/AWS-GR_S3_VERSIONING_ENABLED` |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>_VERSIONING_ENABLED</td>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1::control/AWS-GR_S3_VERSIONING_ENABLED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/AWS-GR_S3_VERSIONING_ENABLED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/AWS-GR_S3_VERSIONING_ENABLED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-south-1::control/AWS-GR_S3_VERSIONING_ENABLED</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:il-central-1::control/AWS-GR_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/AWS-GR_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:ap-south-2::control/AWS-GR_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AWS-GR_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SIONING_ENABLED</td>
<td></td>
<td></td>
<td>Middle East (UAE) arn:aws:controltower:me-central-1::control/AWS-GR_S3_VERSIONING_ENABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/AWS-GR_S3_VERSIONING_ENABLED</td>
</tr>
</tbody>
</table>

**AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| O_DIRECT_INTERNET_ACCESS | • NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20)  
• NIST 800-53 Rev 5 SC-7(21)  
• NIST 800-53 Rev 5 SC-7(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-7(9)  
• PCI DSS version 3.2.1 1.2.1  
• PCI DSS version 3.2.1 1.3  
• PCI DSS version 3.2.1 1.3.1 | • US East (Ohio)  
arn:aws:controltower:us-east-1:control/AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS  
• US West (Oregon)  
arn:aws:controltower:us-west-2:control/AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS  
• Canada (Central)  
arn:aws:controltower:ca-central-1:control/AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>- PCI DSS version 3.2.1 1.3.2</td>
<td>er:ca-central-1:control/AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS</td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS</td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>INTERNET_ ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/AWS-GR_SAGER MAKER_NOT EBOOK_NO DIRECT_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/AWS-GR_SAGER MAKER_NOTEBOOK_OK_NO_DIRECT_INTERNET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/AWS-GR_SAGER MAKER_NOTEBOOK_OK_NO_DIRECT_INTERNET_ACCESS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OK_NO_DIR</td>
<td>ECT_INTER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NET_ACCESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/AWS-GR_SAGEMAKER_KER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-west-1::control/AWS-GR_SAGEMAKER_KER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/AWS-GR_SA</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Asia Pacific (Tokyo)**
  arn:aws:controltower:ap-northeast-1:control/AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS

- **Europe (Paris)**
  arn:aws:controltower:eu-west-3:control/AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS

- **South America (São Paulo)**
  arn:aws:controltower:sa-east-1:control/AWS-GR_SAGEMAKER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:sa-eas t-1:control/AWS-G R_SAGEMAKER ER_NOTEBOOK OK_NO_DIRECT_INTERNET_ACCESS</td>
</tr>
</tbody>
</table>
|                    |           |                  | US West (N. California)  
arn:aws:controltower:us-west-1::control/AWS-GR_SAGEMAKER_NOTEBOOK_OK_NO_DIRECT_INTERNET_ACCESS |
|                    |           |                  | Asia Pacific (Hong Kong)  
arn:aws:controltower:ap-east-1::control/AWS-GR_SAGEMAKER_NOTEBOOK_OK_NO_DIRECT_INTERNET_ACCESS |
|                    |           |                  | Middle East (Bahrain)  
arn:aws:controltower:us-west-1::control/AWS-GR_SAGEMAKER_NOTEBOOK_OK_NO_DIRECT_INTERNET_ACCESS |
## AWS-GR_SSM_DOCUMENT_NOT_PUBLIC

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| AWS-GR_SSM_DOCUMENT_NOT_PUBLIC | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7 | • Limit network access |  
arn:aws:controltower:me-south-1::control/AWS-GR_SAGEMA_KER_NOTEBOOK_NO_DIRECT_INTERNET_ACCESS  
|  |  |  |  
arn:aws:controltower:us-east-1::control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC  
|  |  |  |  
arn:aws:controltower:us-east-2::control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC  |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 SC-7(11)</td>
<td>R_SSM_DOC UMENT_NOT_PUBLIC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(16)</td>
<td>US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/AWS-G R_SSM_DOC UMENT_NOT_PUBLIC</td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(3)</td>
<td>Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(9)</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/AWS-GR_SSM DOCUMENT_NOT_PUBLIC</td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-1:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-central-1:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-west-1:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-west-2:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>doccontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Framework</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Framework</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Framework</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Framework</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-north-1::control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-south-1::control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower ap-nor theast-1: :control/ AWS-GR_SSM M_Document _not公共卫生</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower eu-wes t-3::control/ AWS-G R_SSM_Document _not公共卫生</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower sa-eas t-1::control/ AWS-G R_SSM_Document _not公共卫生</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower us-wes t-1::control/ AWS-G</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>R_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2:control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td>(Hyderabad)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/AWS-GR_SSM_DOCUMENT_NOT_PUBLIC</td>
</tr>
<tr>
<td>(UAE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED | - NIST 800-53 Rev 5 AC-21  
- NIST 800-53 Rev 5 AC-3  
- NIST 800-53 Rev 5 AC-3(7)  
- NIST 800-53 Rev 5 AC-4  
- NIST 800-53 Rev 5 AC-4(21)  
- NIST 800-53 Rev 5 AC-6  
- NIST 800-53 Rev 5 SC-7 | - Limit network access | - US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 SC-7(11)</td>
<td>•</td>
<td></td>
<td>rol/AWS-G/R_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(16)</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(20)</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(21)</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(3)</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(9)</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.2.1</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.1</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.4</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.6</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 2.2.2</td>
<td>•</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **US West (Oregon)**
  - US West (Oregon)

- **Canada (Central)**
  - Canada (Central)

- **Asia Pacific (Sydney)**
  - Asia Pacific (Sydney)

AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED

2895
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>AWS-GR_SU BNET_AUTO_ASSIGN_P UBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G R_SUBNET:_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2:control/AWS-G R_SUBNET_:AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1:control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Arn:aws:controltower:ap-northeast-1:control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-west-3:control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AWS-G R_SUBNET_ AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/AWS-G R_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1:control/AWS-G R_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>R_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-1::control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Israel (Tel Aviv)</td>
</tr>
<tr>
<td>GR_SUBNET_AUTO_ASS</td>
<td></td>
<td></td>
<td>ARN:AWS:CONTROLLERTOWER:IL-CENTRAL-1::CONTROL/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>IGN_PUBLIC_IP_DISABLED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Zurich)</td>
</tr>
<tr>
<td>GR_SUBNET_AUTO_ASS</td>
<td></td>
<td></td>
<td>ARN:AWS:CONTROLLERTOWER:EU-CENTRAL-2::CONTROL/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>IGN_PUBLIC_IP_DISABLED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Spain)</td>
</tr>
<tr>
<td>GR_SUBNET_AUTO_ASS</td>
<td></td>
<td></td>
<td>ARN:AWS:CONTROLLERTOWER:EU-SOUTH-2::CONTROL/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
</tr>
<tr>
<td>IGN_PUBLIC_IP_DISABLED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</td>
<td>Asia Pacific (Hyderabad)</td>
<td><code>arn:aws:controltower:ap-south-2:control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</code></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle East (UAE)</td>
<td><code>arn:aws:controltower:me-central-1:control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</code></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asia Pacific (Melbourne)</td>
<td><code>arn:aws:controltower:ap-southeast-2:control/AWS-GR_SUBNET_AUTO_ASSIGN_PUBLIC_IP_DISABLED</code></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.ACM.PR.1         | None      | • Protect configurations | • **US East (N. Virginia)**
arn:aws:controltower:us-east-1::control/CWIZNCRIHXMW
• **US East (Ohio)**
arn:aws:controltower:us-east-2::control/SOEEZVLQQMBP
• **US West (Oregon)**
arn:aws:controltower:us-west::control/CWIZNUSENMN

**CT.ACM.PR.1**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/RLCUC IOSPRZN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/CK CKTGLVEKYB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/OTJFGEEQXKHE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/JHLOZPXDFZLZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/EF GFCKDLGVOR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/RMPGJNTOZYED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/TMHLCRNZFYCN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-northeast-1::control/XJPCVFFVNLH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/YSLZGQSFAAGK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-1::control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2: :control/ ZYLCIKKLJKLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific</strong> <em>(Tokyo)</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1: :control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XFRRFFLMUBDQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DEOJH GUDMVVV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America</strong> <em>(São Paulo)</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MHGHB XOCHYCS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/OGGUG DZQUZYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltower:ap-east-1::control/DIUHE HAUSSPQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong> arn:aws:controltower:ap-southeast-3::control/IYXOFXBXMLGS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong> arn:aws:controltower:ap-northeast-3::control/PFBKTXIMMIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1::control/AJYPIRBPBHRU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/ZELX XBEFAIZK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/MJAM NXHSTERV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/AI MLPTHSIIAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/JS JTOIKUZXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>th-2::control</td>
<td></td>
<td></td>
<td>PKVAAEBA</td>
</tr>
<tr>
<td>th-2::control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>th-2::control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>th-2::control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Hyderabad)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle East</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(UAE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Melbourne)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------------------</td>
<td>------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>CT-APIGATEWAY.PR.1</td>
<td>• NIST 800-53 Rev 5 AC-4(26)</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td>arn:aws:controltower:us-east-t-1:control/THVNU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td>TMFZVUS</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td>arn:aws:controltower:us-east-t-2:control/XRIIZ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td>CMYLTTPU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td>arn:aws:controltower:us-west-t-2:control/SKIBW</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td>KYUQAAC</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/EU</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td>YZNAPVCUUS</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/MGCUKHLRUHGP</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/QFZCLBSXXBKM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/XHEVQAZTSEAZ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/KBXFFJCCXCCZ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/KBXFFJCCXCCZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eue-wes-2::control/VLFAZ TXPNOXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-th-1::control/RPLZ IVLHUEVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/OWNN OAXIDVKF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control:ASAMDCSLJXZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ETKWXIYCRYUF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower:eu-wes t-3:control rol/VJLLSIZIUQRW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong> arn:aws:controltower:sa-eas t-1:control rol/XGXELVOLINOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong> arn:aws:controltower:us-wes t-1:control rol/ASCJCHWUCXDE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltower:ap-eas t-1:control rol/HQJNVXOQEKEKEX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/CBCSCTURQXDP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/SQJBDNVUHOVM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/EKDI MRUQZBUI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/BRXR BWLDNNXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/EKDI MRUQZBUI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:me-south-1:control/CKGL ZQHZKKZO</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Israel (Tel Aviv)**
|                    |           |                  | arn:aws:controltower:il-central-1:control/AW EXQRIWWTYU |
|                    |           |                  | • **Europe (Zurich)**
|                    |           |                  | arn:aws:controltower:eu-central-2:control/IO PQNYUJZKFP |
|                    |           |                  | • **Europe (Spain)**
|                    |           |                  | arn:aws:controltower:eu-south-2:control/SVVV SCZDWYQP |
|                    |           |                  | • **Asia Pacific (Hyderabad)**
<p>|                    |           |                  | arn:aws:controltower:ap-south-2:control |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

**CT.APIGATEWAY.PR.2**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.APIGATEWAY.PR.2 | • NIST 800-53 Rev 5 CA-7  
• PCI DSS version 3.2.1 10.1  
• PCI DSS version 3.2.1 10.2.1  
• PCI DSS version 3.2.1 10.2.4 | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltow er:us-east-1::control/EHSOKSSMVFWF |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td>US East (Ohio)</td>
<td>arn:aws:controltower:us-east-2::control/MQXZJKMXOREU</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td>US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/XAZHJTQBXMLM</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td>Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/RPOXLFOSAVOI</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/EAPHSJQRHZUB</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southwest-1:control/IFWWBITJQWQO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/PEIQUNSHAALC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/WEFXKWWQELZP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/EDQVHSOAJDDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northern-1::control/JZXXPWRFZLER</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/YVJSVPYRBSBH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/BMGEYEHCOBBU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/XSDRGBMLIVBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/GUYFENMHSMWNE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:south-america-sao-paulo:control/XCTAPIGATEWAYPR.22919</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::cont rol/MQDMD GQZLEEB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (N. California) arn:aws:controltower:us-west-1::control/WITVQTILCFXZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/KAUPNLFAXLZW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/EGXWMKDYFRSK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-2::control/CT.APIGATEWAY.PR.2</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>theeast-3: :control/ SXPSZGLUEEZH</td>
<td></td>
</tr>
<tr>
<td>• <strong>Europe (Milan)</strong></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/MWDN BKQDCNCE</td>
<td></td>
</tr>
<tr>
<td>• <strong>Africa (Cape Town)</strong></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/YCKX UGJPJJVQ</td>
<td></td>
</tr>
<tr>
<td>• <strong>Middle East (Bahrain)</strong></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/BMPT RRAHQMJC</td>
<td></td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/BZ HXNKAANLSRP</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/MR KDCBADGMTL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/KDXSGIXBAPZU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/WUVYCWRIRYYH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/IWHRGFEHFWYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
</tbody>
</table>

<p>| | | | |
|  |  |  |  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.APIGATEWAY.PR.3 | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SC-7(10)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 3.4 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/FIMWSVKNFANN  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/DZDLWPOKGTP1  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/ELALMJSUVZGW |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/XX KODHBWTZTZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/NGDIEPXBGZNX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/ESHXZMSBZXKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/TAYPGUHJACMN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | er:eu-wes  
t-1::cont  
rol/DDAUQ  
MQWAFBZ               |
| • Europe (London)  | arn:aws:c  
ontroltow  
er:eu-wes  
t-2::cont  
rol/BBWEH  
VVZVYOL               |
| • Europe (Stockholm) | arn:aws:c  
ontroltow  
er:eu-nor  
th-1::con  
trol/MQGS  
DYXVDOAD               |
| • Asia Pacific (Mumbai) | arn:aws:c  
ontroltow  
er:ap-sou  
th-1::con  
trol/HEBR  
XKGJORFL               |
| • Asia Pacific (Seoul) | arn:aws:c  
ontroltow  
er:ap-nor  
theast-2:  
:control/  
NBLSRDRBDJXO |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/FGGPHPWIRFWB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/QSKRUWXUNEUH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/EISQVHJSJDWH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/KSZKAGOPPWPH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ct.apiateway.pr.3:2926</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-eas/ctrl/NLXAPQRKPIYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ontroltow/er:ap-southeast-3:/control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ontroltow/er:ap-northeast-3:/control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ontroltow/er:eu-south-1:/control/KCSN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ontroltow/er:af-south-1:/control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/ILKA CTDDSJMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/LJZPLSKCPFIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/PEZSUQGJPLXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/BRRZGXLVBEXS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/MYDV0FUAZSBV</td>
</tr>
</tbody>
</table>
## AWS Control Tower User Guide

### Control identifier

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.APIGATEWAY.PR.4</td>
<td>• NIST 800-53 Rev 5 AC-4(26)</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>us-east-1::control/CSLQU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>us-east-2::control/ZZRGC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ca-central-1::control/WDOZRYGKEQK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-2::control</td>
</tr>
</tbody>
</table>

- NIST 800-53 Rev 5 AU-10
- NIST 800-53 Rev 5 AU-12
- NIST 800-53 Rev 5 AU-2
- NIST 800-53 Rev 5 AU-3
- NIST 800-53 Rev 5 AU-6(3)
- NIST 800-53 Rev 5 AU-6(4)
- NIST 800-53 Rev 5 CA-7
- NIST 800-53 Rev 5 SC-7(9)
- NIST 800-53 Rev 5 SI-7(8)
- PCI DSS version 3.2.1 10.1
- PCI DSS version 3.2.1 10.2.1
- PCI DSS version 3.2.1 10.2.4
- PCI DSS version 3.2.1 10.2.7
- PCI DSS version 3.2.1 10.3.1
- PCI DSS version 3.2.1 10.3.2
- PCI DSS version 3.2.1 10.3.3
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td>:control/ WUQUVNLUXDQU</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/</td>
<td></td>
<td>KHGSJQSDYFLH</td>
</tr>
<tr>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/</td>
<td></td>
<td>HW AUYOESYCQT</td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/</td>
<td></td>
<td>VECSK JBMFGMM</td>
</tr>
<tr>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/</td>
<td></td>
<td>FADFV QHALJX0</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-1:control/HHQM BNTKLT0G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-east-1:control/YRNSAXOGSJSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/MULDPL0TLRAJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/QSCLQQFNNQXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/OOIWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZTWKKPE</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/YLMPP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>INWZYZY</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/ITPBH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0OWRJGI</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/KNVAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HZACOEU</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BOOKWYPOXMTQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/FAGHQEVLPXRL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/IYMXHZIOFYDY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/LODJMMSVEOMN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/KCIFTRLVLAAP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:id-il-central-1:control/LS FQOWIWFSL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:id-eu-central-2:control/PW AHYUHVUMYA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:id-eu-south-2:control/XDLQ VFGAZWOU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:id-ap-south-2:control/VXYN UKKTXGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:id-me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>CT.APIGATEWAY.PR.5</td>
<td></td>
<td>Use strong authentication</td>
<td>US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/YNAHJMRFSATY</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/GDMZARUABRDK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/QSEYQKHHJZQO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/NMHBYPLKKHGT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/RBLHXKSFKZA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/FXZEDHLSFKXJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/UQ CQWSUFRSVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/AKVOX JCRARVM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/YY0CP BGNDCOQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/BVSV XEMRTBNG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/UXJB MYYQDHMX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/RFIFJOHVLBAB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/UKYEADDRMENU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/JNGATIWVCYCS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/ZHWUFBJCAJBB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:us-west-1:control/YHRHPQEAQQQFX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:ap-east-1:control/EGRYMBUFUD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:ap-southeast-3:control/PAPTPLXSKUIJL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:ap-northeast-3:control/GVUDUXKDLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:eu-south-1:control/CT.APIGATEWAY.PR.52940</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/BROA SONAOUZH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/WSNS TKYGKFUC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/HLDJ VPJJ0PEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/EF KJPLZIUAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/WH SNEETRFEHL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2:control/ATODWGOMZUCX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2:control/EOXAVTBQIHIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1:control/ILMJIBFINEQK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/XOIJWVLCCYTYU</td>
</tr>
</tbody>
</table>
## CT.APIGATEWAY.PR.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.APIGATEWAY.PR.6 | • NIST 800-53 Rev 5 AC-17(2)  
  • NIST 800-53 Rev 5 AC-4  
  • NIST 800-53 Rev 5 IA-5(1)  
  • NIST 800-53 Rev 5 SC-12(3)  
  • NIST 800-53 Rev 5 SC-13  
  • NIST 800-53 Rev 5 SC-23  
  • NIST 800-53 Rev 5 SC-23(3)  
  • NIST 800-53 Rev 5 SC-7(4)  
  • NIST 800-53 Rev 5 SC-8  
  • NIST 800-53 Rev 5 SC-8(1)  
  • NIST 800-53 Rev 5 SC-8(2)  
  • NIST 800-53 Rev 5 SI-7(6)  
  • PCI DSS version 3.2.1 2.3  
  • PCI DSS version 3.2.1 4.1 | • Encrypt data in transit | • US East (N. Virginia)  
  arn:aws:controltower:us-east-1::control/LEGXJUSWUBYG  
  • US East (Ohio)  
  arn:aws:controltower:us-east-2::control/GCVCIFFYYIDDI  
  • US West (Oregon)  
  arn:aws:controltower:us-west-2::control/ZHTQTRRJWMVV  
  • Canada (Central)  
  arn:aws:controltower:ca-central-1::control/OTRRYHQAPMY |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • PCI DSS version 3.2.1 8.2.1 | • Asia Pacific (Sydney)  
ar.n:aws:controltower:ap-southeast-2::control/NGYIOYBYJLXL  
• Asia Pacific (Singapore)  
ar.n:aws:controltower:ap-southeast-1::control/HKKDWUFJIPOW  
• Europe (Frankfurt)  
ar.n:aws:controltower:eu-central-1::control/ZWRTQAVLHFEX  
• Europe (Ireland)  
ar.n:aws:controltower:eu-west-1::control/GODRTVCQLFRW  
• Europe (London)  
ar.n:aws:controltower:eu-west-1::control/GODRTVCQLFRW |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/GDUDQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JEAZOYB</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1:control/VOAF</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RPAPOKKZ</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southeast-1:control/FYRZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EYAUDCMX</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/KUTDOXVOKANL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/KUTDOXVOKANL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MQYPRRNUCSOT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/FTMJQQMLWIID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/PRKHF LPAUJQS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ZBNWF GFGNOLW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/BOFKP QACPDVG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/QDOMOGKGWUOB</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3::control/GRMWXCQOGMBQ</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/JMBKFYKXNRREY</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/TVZMDZVNREUD</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/TVZMDZVNREUD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower me-south-1::control/HZBR LLFMKYLT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/NO WTBXQMFZOI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Zurich) arn:aws:controltower:eu-central-2::control/FX SQWOABYYRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Spain) arn:aws:controltower:eu-south-2::control/HDUP SFYARAKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control</td>
</tr>
</tbody>
</table>

**Control identifier**

**Framework**

**Control objective**

**Control API identifiers, by Region**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.APPSYNC.PR.1</td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/MU HJMI0UYMPR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower:ap-southeast-4::control/ECADNMFRQVPH</td>
</tr>
</tbody>
</table>

### CT.APPSYNC.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.APPSYNC.PR.1</td>
<td></td>
<td></td>
<td><strong>US East (N. Virginia)</strong> arn:aws:controltower:us-east-1::control/ECXYQKUETWKC</td>
</tr>
</tbody>
</table>

- NIST 800-53 Rev 5 AC-4(26)
- NIST 800-53 Rev 5 AU-10
- NIST 800-53 Rev 5 AU-12
- NIST 800-53 Rev 5 AU-2

- Establish logging and monitoring
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2:control/AJBUYRGFMZAE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1:control/KRLWEXIRJPA</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/VZIWINLZXVMA</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/SZSRSNLX00XB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/MTIRJIPWCKMX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/CXUKMNSNXB00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/RDKAXOQVBOPSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/DLWGUVABSKGB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southern-1::control/QHZRCUZCBFVR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/CXEXLMCYDMPY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/XRXGFZGEYPMV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/QUFDDHHUWEED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southern-1::control/QHZRCUZCBFVR</td>
</tr>
</tbody>
</table>

**Note:** The table entries represent control identifiers and framework regions for AWS Control Tower.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:sa-eas t-1::control rol/KBRRHKUVKJIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::control rol/NYHHS ONNHIWM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::control rol/BFEHJ BXPOGJN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/YVQNVHXXOXYLSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: :control/ TBPNGNZBEDTST</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:c ontroltower er:eu-south-1::control/WHCW MAHTSOPR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:c ontroltower er:af-south-1::control/SII0 FVZPPRKF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:c ontroltower er:me-south-1::control/ABNG UTRSLNDB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:c ontroltower er:il-central-1::control/OR FYDUQFUMSG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/VF NPSSMVRVNT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/VTIF QREJYECJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/KHNU YYGINTJK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/IX VVMUCTNMOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

**CT.APPSYNC.PR.2**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.APPSYNC.PR.2     | • NIST 800-53 Rev 5 AC-21  
                      • NIST 800-53 Rev 5 AC-3  
                      • NIST 800-53 Rev 5 AC-3(7)  
                      • NIST 800-53 Rev 5 AC-4  
                      • NIST 800-53 Rev 5 AC-4(21)  
                      • NIST 800-53 Rev 5 AC-6  
                      • NIST 800-53 Rev 5 SC-7  
                      • NIST 800-53 Rev 5 SC-7(11)  
                      • NIST 800-53 Rev 5 SC-7(16)  
                      • NIST 800-53 Rev 5 SC-7(20) | • Limit network access | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/YALQWSJIMFVU  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/IUACTSJITYIP  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/OJCFZINVIMTK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td>Canada (Central) arn:aws:controltower:ca-central-1::control/MDZMFQUIIFJSZ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/EPAPANCIGHNL</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/SQADHLZMBZJN</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/ZFMIUZRFIIDZ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/KPCUMXFUZQWY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes t-2::control/WZDLWQSTOSVK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor th-1::control/BLRXDIMFGQJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/YZTDFULTHZAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/MMIBKBUAXXX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/BYDTAFCKTVON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/KPJYMSGQUONE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/CORISMGRVTBQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/AWCIAJRPMESS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/ASYCTAPPSYNC.PR.22959</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-eas:control/FAZJYQKXZNZD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:ontroltower:ap-southeast-1:control/XLMCUHYROLCP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:ontroltower:ap-northeast-3:control/YMEIVNTGKVYF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:ontroltower:eu-south-1:control/JZUYXWPLLCYX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:ontroltower:af-south-1:control/KZSELKXVHELXW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/WRAJ DIMQFJNZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1:control/ZRBN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZNZKFFVSB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:il-central-1:control/WG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YORDBIOUGK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-2:control/JJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>INXXJYEFGA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-2:control/BMSD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SLXZPINV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.APPSYNC.PR.3</td>
<td>- NIST 800-53 Rev 5 AC-2(1)</td>
<td>- Enforce least privilege</td>
<td>- US East (N. Virginia) arn:aws:controltower:us-east-2::control/HJCSACGZAZKN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
<td>ontroltowerer:us-east-1::control/CDQLXCUUGHOY</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:us-east-2::control/MMGMSISTUNPH</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:us-west-2::control/MTXEWCQXZRSJ</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:ca-central-1::control/GQJWEDLMDAOWD</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/SZDKCLTUHPDS</td>
</tr>
<tr>
<td></td>
<td>Asia Pacific (Singapore)</td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/VNCILGZEFDHS</td>
</tr>
<tr>
<td></td>
<td>Europe (Frankfurt)</td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/LHIJSAZYQGBQ</td>
</tr>
<tr>
<td></td>
<td>Europe (Ireland)</td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/ZCAGTBPRCATH</td>
</tr>
<tr>
<td></td>
<td>Europe (London)</td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/SKVDXXAIZXAS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1:control/JNBFWDSXTTTSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/DSCBAAVLXJTA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/DKAIJLHZEZFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/HXVOUTLHLMAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
</tbody>
</table>

CT.APPSYNC.PR.3   2965
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3:control/NSUWZ XLBBZGU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas t-1:control/WQRXWMANRGTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes t-1:control/PDCBB SRBGWCU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas t-1:control/PARBB QZHXMYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-souththeast-3:CT.APPSYNC.PR.3 2966</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FRBNCATEBZVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/OCFAARZLCVUW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/GEZDAESWIHAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/XXAMXNJJHIZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/VQTAGSFTYZWE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Israel (Tel Aviv)**
  ```
  arn:aws:controltower:il-central-1::control/FXLRULXUOQOB
  ```

- **Europe (Zurich)**
  ```
  arn:aws:controltower:eu-central-2::control/JBDXGSHRENLT
  ```

- **Europe (Spain)**
  ```
  arn:aws:controltower:eu-south-2::control/EQEGUFUDDQHJ
  ```

- **Asia Pacific (Hyderabad)**
  ```
  arn:aws:controltower:ap-south-2::control/IKYKQMGGAKTZ
  ```

- **Middle East (UAE)**
  ```
  arn:aws:controltower:me-central-p:control/AMUZBMNQ0QH
  ```
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.APPSYNC.PR.4     | NIST 800-53 Rev 5 AC-17(2) | Encrypt data in transit | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/KXQLGHLTDUKA |
|                     | NIST 800-53 Rev 5 AC-4 |                                        | • US East (Ohio)  
ar:aws:controltower:us-east-2::control/PEPMJSRRAZXC |
<p>|                     | NIST 800-53 Rev 5 IA-5(1) |                                     |                                  |
|                     | NIST 800-53 Rev 5 SC-12(3) |                                     |                                  |
|                     | NIST 800-53 Rev 5 SC-13 |                                     |                                  |
|                     | NIST 800-53 Rev 5 SC-23 |                                     |                                  |
|                     | NIST 800-53 Rev 5 SC-23(3) |                                     |                                  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/KPAZGUODKWRH</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/GLSYFOFCUE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/QMIISENUKIZB</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/MSRCCHVLERDN</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Europe (Ireland)**
  arn:aws:controltower:eu-west-1::control/JEWJGQYDTBBV

- **Europe (London)**
  arn:aws:controltower:eu-west-2::control/SAUCBCNEYIBQ

- **Europe (Stockholm)**
  arn:aws:controltower:eu-north-1::control/TITPSTZOQJEA

- **Asia Pacific (Mumbai)**
  arn:aws:controltower:ap-south-1::control/YBIIYQMKBPC
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/IZCXFCDNHOEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/SKJIDSWEEBBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/VYCGKMZTLQBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/OWXHXGWEYHXGT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er::us-wes t-1::cont rol/ZHBAG UQQVLKG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong> arn:aws:contr</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/IZKK JIXCHNGE</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/HXPD FHUHEAGX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/NJNP PEGGGHUH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/XC LYSHBAFVLP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/AA QCADCUGNNZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/PBWZKZJTUYPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/CDKXWSFZGMII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/JNWFIEANKNDM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/KQAFEIDTVWYB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.APPSYNC.PR.5    | - NIST 800-53 Rev 5 CA-9(1)  
|                   | - NIST 800-53 Rev 5 CM-3(6)  
|                   | - NIST 800-53 Rev 5 SC-13  
|                   | - NIST 800-53 Rev 5 SC-28  
|                   | - NIST 800-53 Rev 5 SC-28(1)  
|                   | - NIST 800-53 Rev 5 SC-7(10)  
|                   | - NIST 800-53 Rev 5 SI-7(6)  
|                   | - PCI DSS version 3.2.1  
|                   | - PCI DSS version 3.2.1 8.2.1 | Encrypt data at rest | • US East (N. Virginia)  
|                   | | | arn:aws:controltower:us-east-1::control/JSKWYPYNUFBV |
|                   | | | • US East (Ohio)  
|                   | | | arn:aws:controltower:us-east-2::control/RGSLGMUEQ0XS |
|                   | | | • US West (Oregon)  
|                   | | | arn:aws:controltower:us-west-2::control/SNXQHRNUFTVT |
|                   | | | • Canada (Central)  
<p>|                   | | | arn:aws:controltower:ca-central-1::control/FGRIEMDEJJCD |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/ DUHLLHOUUMSWK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/MGQZMYVDXKJS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/QBIHQJYGYUJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/NNNDVOOEQGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/YHZYL RZMFPH0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/JCAXRFBFBDQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/LLJE FWBUEEMA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control2: CXBGWZGMPXHM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>:control/JYPEKUMPXCUA</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-wes</td>
<td></td>
<td>Europe (Paris)</td>
</tr>
<tr>
<td>• South America</td>
<td>arn:aws:controltower:sa-eas</td>
<td></td>
<td>South America (São Paulo)</td>
</tr>
<tr>
<td>• US West (N.</td>
<td>arn:aws:controltower:us-wes</td>
<td></td>
<td>US West (N. California)</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-eas</td>
<td></td>
<td>Asia Pacific (Hong Kong)</td>
</tr>
</tbody>
</table>

CT.APPSYNC.PR.5
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:control/HBAZXGAUBONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3:control/LWZZOXDNXPAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/PBFQTTVIAQLU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/VQCMTFWZFESX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:af-south-1:control/VQCMTFWZFESX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower::me-south-1::control/GUKF ISUDEUYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower::il-central-1::control/YQ QNPDLXEBEC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower::eu-central-2::control/MG KBZFZNASR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower::eu-south-2::control/BFVD RTHKJLKL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower::ap-south-2::control</td>
</tr>
</tbody>
</table>

**Control identifier**: Unique identifier for each control.

**Framework**: The framework associated with the control.

**Control objective**: The objective of the control.

**Control API identifiers, by Region**: The ARNs associated with the control for each region.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.APPSYNC.PV.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CT.APPSYNC.PV.1**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.APPSYNC.PV.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-21</td>
<td></td>
<td>Limit network access</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/GDWPO PDDUXNQ</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(21)</td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td>• PCI DSS version 3.2.1 1.3</td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/XNSSRZIDASBO</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(3)</td>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/GIEDWCIHIRESTE</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-2::control/GIEDWCIHIRESTE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/AXUBGPDVHUEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/NNVLEIVTNFHB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/HJUTBNSDLFBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/QTKUHWDNZXGO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/XYERPUKVVRQX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/OAYE UAAFDUDDQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/ZVMZWNPPTITL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/YNSQAMIIRMGX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3:control/FSUFJ SWNSETOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:south-america-sao-paulo:control/TUSQVGCQCTTQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltorw er:sa-eas t-1::cont rol/BVZNW LXUCMKH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:c ontroltorw er:us-wes t-1::cont rol/TMSFT WZRWKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltorw er:ap-eas t-1::cont rol/JUWGY FFVXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltorw er:ap-sou theast-3: :control/ DYSCGAATRAXF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltorw er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/DSFM/ITDCAMSZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/VNLZ/ALRQBJHO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/VQLW/SAXZPUIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/UR/OPEMZXRTR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/WRZPZPZIXTG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/AMGWCNEXGLWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/XUCEXYLCFRYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/CAVGFRMHJJHO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.ATHENA.PR.1     | • NIST 800-53 Rev 5 CA-9(1)  
|                    | • NIST 800-53 Rev 5 CM-3(6)   
|                    | • NIST 800-53 Rev 5 SC-13     
|                    | • NIST 800-53 Rev 5 SC-28     
|                    | • NIST 800-53 Rev 5 SC-28(1)  
|                    | • NIST 800-53 Rev 5 SC-7(10)  
|                    | • NIST 800-53 Rev 5 SI-7(6)   
|                    | • PCI DSS version 3.2.1 3.4   
<p>|                    | • PCI DSS version 3.2.1 8.2.1 |
|                    | • Encrypt data at rest        |
|                    | • US East (N. Virginia)       |
|                    | arn:aws:controltower:us-east-1::control/SIBMPUMBLODX |
|                    | • US East (Ohio)              |
|                    | arn:aws:controltower:us-east-2::control/GEXGKIOWZMFF |
|                    | • US West (Oregon)            |
|                    | arn:aws:controltower:us-west-2::control/HVZCGINGZUAN |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/QOALNQRZALAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/OWIQVCRQCRW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/RPVMIWYTRCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower.eu-central-1:control/AQAVGDFNISJL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes t-1:control/DOWMI CVGTMAF</td>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2:control/IIYEUBWEBSMB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/BJJGBTHMDVPX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-th-1:control/DTWSCCHPQVNT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/XKHQXSYDURHJ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/RBONCQKZNOTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/TMUWPCFSGVND</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/GQTMGEODUBDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1:control/SWNRBVQJSTPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-southeast-1:control/BRQKZNOTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-southeast-2:control/BRQKZNOTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/RBONCQKZNOTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/TMUWPCFSGVND</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/GQTMGEODUBDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1:control/SWNRBVQJSTPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-southeast-1:control/BRQKZNOTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-southeast-2:control/BRQKZNOTT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-eas:control/APIFBK EYTLWHO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/XZCPAQEMUOVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/SOIGIAYMTJZT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-southeast-1:control/AMYQFQSBYIYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-southeast-1:control/</td>
</tr>
</tbody>
</table>

CT.ATHENA.PR.1
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ENSkirXWOQ HXMRFLBFS</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:me-south-1:control/RQLNWYVGONGR</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:il-central-1:control/JOVCVNZSXXOG</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-central-2:control/BUANQOGPDSKD</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-south-2:control/TTCZJBXUAKIS</td>
</tr>
</tbody>
</table>

**Control identifier**

**Framework**

**Control objective**

**Control API identifiers, by Region**
### Control identifier, Framework, Control objective, Control API identifiers, by Region

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ATHENA.PR.2</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
<td>ontroltowerer:us-east-1::cont rol/LNAAS CWIYQWF</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::cont rol/BNBFJ QSJJIFX</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::cont rol/FKFIK KLBQLRU</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::cont rol/IA MMTTGPSKEX</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>:control/ UICXTPHIPSTT</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>• Asia Pacific</td>
</tr>
<tr>
<td>(Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ XMSFGWXSQSWH</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:europe-central-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ EA DNJFRAYKUJ</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:europe-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AZHMI HHETZDO</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:europe-west-2::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PUSAP FIQCZNX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/MPGNZBGWNFVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/XZSYTUYWCXPR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/JPLEOSQGPVEV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/KPLQRIMZGQFV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/XXXDC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QWYZWYF</td>
</tr>
<tr>
<td>• South America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/ZETBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DEAOPXT</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/VQPTJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GDPPKXXK</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/FSUYB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VWAVPGK</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/0RRXHOXQUYOA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/SVHRKRGSQYKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/REDTAGETRZSC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/GXLVUGZWGPTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/DQSSCZSZUYSW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/CB HKJDCZWOWR</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/UC HRTODUKKUVE</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/URPF ISNFLYYG</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/WPKK GXFEUSGM</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
### CT.AUTOSCALING.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.AUTOSCALING.PR.1</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Improve availability</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1:control/LHUKYNERKWTH</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td></td>
<td>arn:aws:controltower:us-east-2:control/IBUFUPGANKZJ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| - NIST 800-53 Rev 5 SC-5(2) | | | • **US West (Oregon)**
  `arn:aws:controltower:us-west-2::control/KFRLNAHWVNDQ` |
| - NIST 800-53 Rev 5 SI-13(5) | | | • **Canada (Central)**
  `arn:aws:controltower:ca-central-1::control/SDBNXVSDHXFD` |
| - PCI DSS version 3.2.1 2.2 | | | • **Asia Pacific (Sydney)**
  `arn:aws:controltower:ap-southeast-2::control/GUKAWPWOAMGJ` |
| | | | • **Asia Pacific (Singapore)**
  `arn:aws:controltower:ap-southeast-1::control/QYEYJCSWQXXD` |
| | | | • **Europe (Frankfurt)**
  `arn:aws:controltower:` |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/LQQDNIWFNOQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/MOLUIXBLTNNW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/YJQLIPRDBJSM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/POOFLSRCMVHC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/UWTJAKCQQDQS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/FSXLENXSGMGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/UYJOBTDPHAIM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/LURITYKMZLDH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/DTNVACZLNIPM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/CT.AUTOSCALING.PR.1:3005</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:us-wes t-1::cont rol/NCYEG HVMTPXX</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/EUMJCOCOQPVZV</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-south-east-3:control/BXWJNMFCDYNN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controltower:ap-north-east-3:control/MOPBPJKZRKCDYNN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-east-1:control/BXWJNMFCDYNN</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/HDSP PVQSLZUA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:c trol/tow er:af-sou th-1::con trol/LPDQ XNXJOCUG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:c trol/tow er:me-sou th-1::con trol/RFZE ANHEBLOT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:c trol/tow er:il-cen tral-1::c ontrol/IS DBSSNARIHR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:c trol/tow er:eu-cen tral-2::c ontrol/YU DNGTLYTVYU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2:control/BPGHYVYPDUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2:control/PMSUPKWKJNJRZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1:control/ZIKRKCQBGWF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/XQUOYYWUREYF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------</td>
<td>----------------------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| CT.AUTOSCALING.PR.10 | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-2  
• NIST 800-53 Rev 5 CM-2(2)  
• PCI DSS version 3.2.1 2.2 | • Protect data integrity  
• Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/MVJMDOPCHBBJ  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/DUYNJIVJYYES  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/KCPRFSJWXOGM  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/SNIFZDSHBSEQ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
|                    |           |                   | • **Asia Pacific (Sydney)**
|                    |           |                   | arn:aws:controltower:ap-southeast-2:control/OISPUYEMXWDM |
|                    |           |                   | • **Asia Pacific (Singapore)**
|                    |           |                   | arn:aws:controltower:ap-southeast-1:control/XHGVMBLNPPWK |
|                    |           |                   | • **Europe (Frankfurt)**
|                    |           |                   | arn:aws:controltower:eu-central-1:control/NKCAQTTDOFG |
|                    |           |                   | • **Europe (Ireland)**
|                    |           |                   | arn:aws:controltower:eu-west-1:control/HMVEFWNNHHUTX |
|                    |           |                   | • **Europe (London)**
<p>|                    |           |                   | arn:aws:controltower |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>er:eu-wes</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>t-2:control</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>rol/EETUI</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ZAQWGAA</strong></td>
</tr>
<tr>
<td>• <strong>Europe (Stockholm)</strong></td>
<td><strong>arn:aws:controltower</strong></td>
<td></td>
<td><strong>er:eu-north-1:control</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>CYWGZFXWCW</strong></td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Mumbai)</strong></td>
<td><strong>arn:aws:controltower</strong></td>
<td></td>
<td><strong>er:ap-south-1:control</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>LGTYDBJHKRWY</strong></td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Seoul)</strong></td>
<td><strong>arn:aws:controltower</strong></td>
<td></td>
<td><strong>er:ap-northeast-2:control</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ZQNRMCZKOUAT</strong></td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
<td><strong>arn:aws:controltower</strong></td>
<td></td>
<td><strong>er:ap-northeast-1:control</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RBQYQGMSHNLF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/XUXCKEHNSBOG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/EVOJXTEIPZKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/YTLCCWECZXYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/XIANJ0ZOITXH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/HRADZAJMASBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3::control/ZXFBYRTFQSEF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/JKBGUGUPUXOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/XPMJUVGQRZQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/XPMJUVGQRZQP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/UEWB EZWBAFAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/QN SBUMGSEKRJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/SJ HFPGSBNCCP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/SVBZ RUZEGMYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/UEWB EZWBAFAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Control Identifier: CT.AUTOSSCALING.PR.11

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.AUTOSSCALING.PR.11</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data in transit</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td>• Protect data integrity</td>
<td>arn:aws:controltower:us-east-1::control/OLRACLXUGWDA</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td>• Enforce least privilege</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/DUAMD OAQRDMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/MPAFQ HWVRUYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/CQ VXMPKTZZLD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/GRJULAQNDWZL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ LTEZJRQBQQYX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:ctrolltow er:eu-central-1:control/RTQHWVKEOQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:ctrolltow er:eu-west-1:control/CHBXZVZCTIBQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:ctrolltow er:eu-west-2:control/QKJIOLFNDGMR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:ctrolltow er:eu-north-1:control/QVZFLXUEKXMC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/RZLFQWHTFKLX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/BPRUTBOPITBZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/SBSPOYCVUQFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/HNIZWLRFKHZJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/HNIZWLRFKHZJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-east-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YTWQB::JWKZDXS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/ENFCD::XVLDJME</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/NUZQY::TYKBLMD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AIVKYADIWIXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control/ WVMBATXXQYGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1::control/BYNSJFXOHCOC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/ZJUKULWWSHEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/BHETJYCYYMGR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/OFDKFLDYRGUH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/PI JJPHEAASZC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/LGAM IVPBSHQS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/DMKZ TXZXOCDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/JP XNUWHGCQAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
</tbody>
</table>

Note: The table is incomplete and missing some rows.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.AUTOSCALING.PR.2 | • NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(15)  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-2  
• PCI DSS version 3.2.1 7.1.1  
• PCI DSS version 3.2.1 7.2.1  
• PCI DSS version 3.2.1 7.2.2 | • Protect configurations | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/GZBGBNOSJNHE  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/FIAZHJHSVVL  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/AJUNDFQNUTW |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1:control/ZR MHGMLRJGDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2:control/WWWWWDZRSYOB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1:control/WASLCDWKGJBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1:control/PK WPQZWUDPMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/UBAHW QGSLVPQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2::control/JZYHT BOMKDXG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/WYHX VTOLLXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/ZSFU PIZUKOLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/TBBXRAYTVDEK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td>Control Tower</td>
<td>Arn:aws:controltower:ap-northeast-1:control/DUPFUTISTCKO</td>
<td></td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td>Control Tower</td>
<td>Arn:aws:controltower:eu-west-3:control/RIBMYJWGNUIJW</td>
<td></td>
</tr>
<tr>
<td>South America (São Paulo)</td>
<td>Control Tower</td>
<td>Arn:aws:controltower:sa-east-1:control/IJFUBHJAPHSUS</td>
<td></td>
</tr>
<tr>
<td>US West (N. California)</td>
<td>Control Tower</td>
<td>Arn:aws:controltower:us-west-1:control/INKEXBGBWVPF</td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Hong Kong)</td>
<td>Control Tower</td>
<td>Arn:aws:controltower:ap-northeast-2:control/DDFUTISTCKO</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/MREIL TLELYSG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:control/OKTFVJFNOEGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3:control/EPLQWROCHULU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/XEJSBBJIGSRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/</td>
</tr>
</tbody>
</table>

Note: The control identifiers are placeholders for actual AWS Control Tower identifiers.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/PCOG ZFZUZXPX</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/JATC UEWOCJQZ</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/NPETPABQDTN0</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/OCWPOVIYYTSL</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/XGADYEWUCJUE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.AUTOSCALING.PR.3 | NIST 800-53 Rev 5 CA-9(1) | Protect configurations | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/PCDF  
ZDMSEJKW |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>ontroltower:us-east-1:control/ZSHOA BWRTUIY</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>US East (Ohio)</strong></td>
<td></td>
<td>arn:aws:controltower:us-east-1:control/XDFSV FABUXJV</td>
</tr>
<tr>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/KQGVS JMAGCQK</td>
</tr>
<tr>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/UJ LFDUJHLYUQ</td>
</tr>
<tr>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/THEAST-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PDKMRLRUFNDY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/VPGOUEKJYCVR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/ZWZDVUOFWRVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/DZCHICHZPIG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/MRCYHSBHWSP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/UZQU BHHSSTLR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/XTCC YWXZTQQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/DPCTDUCUBSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/AEBSPKXCLBY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>-------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/role/XEASQ SEGQGIK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas t-1::control/role/PLLJSTBTFPUX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes t-1::control/role/QQNJV LKGQIYA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas t-1::control/role/MVBSWFPTHKLL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/TAVCFHICTOOC</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3::control/TCTWXWXSMPMI</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/ESETQPIYIGQD</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/BXKGYSNCEIQO</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/OPUWNAQIOALE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/PH UWEEGCDRBL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/HG YPZVXWSHAZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/TOHL HAQRVXWX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/BYAB BFQHKMBZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
### CT.AUTOSCALING.PR.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.AUTOSCALING.PR.4 | • NIST 800-53 Rev 5 CA-7  
• NIST 800-53 Rev 5 CP-2(2)  
• NIST 800-53 Rev 5 SI-2  
• PCI DSS version 3.2.1 2.2 | • Improve availability | • US East (N. Virginia)  
ar:aws:controltower:us-east-1:control/UKYGXEVHJUTL  
• US East (Ohio)  
ar:aws:controltower:us-east-2:control/WMWBOCEROGJK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/UEEYNVTGUBLF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/VCDSRAZXDLZP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/DIXWASPFNOFQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/WAVCCMIDCEXH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/PO LAIJLNEGQU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower er:eu-west-1::control/IYKSV EZZLTFN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower er:eu-west-2::control/TJGWW GICHSES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower er:eu-north-1::control/NVNX TLBWMDUW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower er:ap-southeast-1::control/SOTB XAWRFPZB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/ZFE0JGAMVVZT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/WWETVQMUSGFB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/HHTBCTOYPGHZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/MIHQDSUSOAVN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:northwest-2::control/MIHQDSUSOAVN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/ODABN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VXWCCWN</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controllower</td>
<td>er:ap-east</td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controllower</td>
<td>er:ap-south east-3:</td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controllower</td>
<td>er:ap-nor</td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controllower</td>
<td>er:eu-south east-1::control/</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>trol/BDAQ</td>
<td></td>
<td></td>
<td>OQKWQVIX</td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td>arn:aws:</td>
<td></td>
<td>control/tower</td>
</tr>
<tr>
<td></td>
<td>er:af-sou</td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td></td>
<td>er:il-cen</td>
<td></td>
<td>tral-1::control</td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td>arn:aws:</td>
<td></td>
<td>control/tower</td>
</tr>
<tr>
<td></td>
<td>er:me-sou</td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td></td>
<td>er:eu-cen</td>
<td></td>
<td>tral-2::control</td>
</tr>
<tr>
<td>Europe (Zurich)</td>
<td>arn:aws:</td>
<td></td>
<td>control/tower</td>
</tr>
<tr>
<td></td>
<td>er:af-sou</td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td></td>
<td>er:il-cen</td>
<td></td>
<td>tral-1::control</td>
</tr>
<tr>
<td></td>
<td>er:eu-cen</td>
<td></td>
<td>tral-2::control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) <strong>arn:aws:controltower:eu-south-2::control/EEEUWWSLNVLL</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) <strong>arn:aws:controltower:ap-south-2::control/LPLVNKCQLVJF</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) <strong>arn:aws:controltower:me-central-1::control/CFRAAHZMNZLB</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) <strong>arn:aws:controltower:ap-southeast-4::control/OJSMBFTLWYYY</strong></td>
</tr>
</tbody>
</table>
## CT.AUTOSCALING.PR.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.AUTOSCALING.PR.5 | • NIST 800-53 Rev 5 AC-21              | • Limit network access | • US East (N. Virginia)  
|                     | • NIST 800-53 Rev 5 AC-3               |                     |  
|                     | • NIST 800-53 Rev 5 AC-3(7)            |                     |  
|                     | • NIST 800-53 Rev 5 AC-4               |                     |  
|                     | • NIST 800-53 Rev 5 AC-4(21)           |                     |  
|                     | • NIST 800-53 Rev 5 AC-6               |                     |  
|                     | • NIST 800-53 Rev 5 SC-7               |                     |  
|                     | • NIST 800-53 Rev 5 SC-7(11)           |                     |  
|                     | • NIST 800-53 Rev 5 SC-7(16)           |                     |  
|                     | • NIST 800-53 Rev 5 SC-7(20)           |                     |  
|                     | • NIST 800-53 Rev 5 SC-7(21)           |                     |  
|                     | • NIST 800-53 Rev 5 SC-7(3)            |                     |  
|                     | • NIST 800-53 Rev 5 SC-7(4)            |                     |  
|                     | • NIST 800-53 Rev 5 SC-7(9)            |                     |  
|                     | • US East (Ohio)  
|                     | arn:aws:controltower:us-east-2::control/RHEYJDCZKXSD |                     |  
|                     | • US West (Oregon)  
|                     | arn:aws:controltower:us-west-2::control/IKGGRITHSTQX |                     |  
|                     | • Canada (Central)  
|                     | arn:aws:controltower:ca-central-1::control/CXHVX0ATJHPY |                     |  

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/AQIXLPCCRQHS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/THTGVEGTGXBO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/GDYUPFOPBKQP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/KICFAVQBOREF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/UPTNY PJYCVOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:c ontrollower:eu-nor th-1::cont rol/CZLF MLNISVYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:c ontrollower:ap-south-1::cont rol/YWRL TVCFEEXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:c ontrollower:ap-northeast-2::control: MOWUHFAOJRJY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:c ontrollower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RJDSVNZODQNV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/IHWPSXMEXIFN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/NPDLNLLZAFAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/PKLTQMQWOKPC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/ESHYEDTXwWSUW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/MFBWYIYZRDWU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/FOSLERMMWGCQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/LZHHRTKSKBYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/YIJB LHBBQZVZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/YIJB LHBBQZVZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/HWYC:VNKQJITZ</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Israel (Tel Aviv)**  
|                    |           |                  | arn:aws:controltower:il-central-1::control/DZ:ZROKPAXCYC |
|                    |           |                  | • **Europe (Zurich)**  
|                    |           |                  | arn:aws:controltower:eu-central-2::control/YJ:UEUNVOJKAO |
|                    |           |                  | • **Europe (Spain)**  
|                    |           |                  | arn:aws:controltower:eu-south-2::control/HBCL:YPOQKNIW |
|                    |           |                  | • **Asia Pacific (Hyderabad)**  
<p>|                    |           |                  | arn:aws:controltower:ap-south-2::control/HWYC:VNKQJITZ |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.AUTOSCALING.PR.6 | • NIST 800-53 Rev 5 CP-10  
• NIST 800-53 Rev 5 CP-2(2)  
• NIST 800-53 Rev 5 CP-6(2)  
• NIST 800-53 Rev 5 SC-36 | • Improve availability | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/IMJNNSRJLUDS |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/SBFDHQVFTINU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/XMQUOEMIYMAQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/KNWXLCUZBJPR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/HYEMAFKYGEOG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ JBGGLEZGYNNY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltow er:eu-central-1::control/KPZDJXQARN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltow er:eu-west-1::control/WMTUSTWLRDZ0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltow er:eu-west-2::control/ZPCRFNLDIVTB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltow er:eu-north-1::control/EQRHGKGNQNGX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/OLNB KFLLQMBM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/PALLYLIKPDO0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/RIHZBJGCQNZN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/VVHBD VAENCX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::cont rol/RRGVM SFSHYVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong> arn:aws:controltow er:us-wes t-1::cont rol/VULHV TLCFHLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltow er:ap-eas t-1::cont rol/EVLGN FFONEDR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong> arn:aws:controltow er:ap-southeast-3: :control/ RIAHUSPABQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong> arn:aws:controltow er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: :control/ BSHJGOWIYAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:c ontroltower er:eu-south-1::control/WTWC PKFEWPyK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:c ontroltower er:af-south-1::control/NCNV PQRRQZRO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:c ontroltower er:me-south-1::control/DWSD KOZNKSIN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:c ontroltower er:il-central-1::control/QA QRWYEEZZGK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/UG ALPVVXQVQC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/LEMB CAXJDJXF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/NCSO ESJIZPDJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/HL LQBYJSJHOV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.AUTOSCALING.PR.8</td>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td>Manage vulnerabilities</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/JAZMSKNXGBDD</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>US East (Ohio) arn:aws:controltower:us-east-2::control/CBEYLCICUQCE</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td>US West (Oregon) arn:aws:controltower:us-west-2::control/PKAHSCIYKNJT</td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/SUQITVFXSNAS</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/ZBBMSBCWHDJT</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/CTwwGOPBJZZV</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/USQMZZGHDRYN</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/forecast/YBNNIYMRBIYNYMRBIYNYMRBIYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-wes t-2::control/forecasts/ZYAHAGQKQTAU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-north-1::control/JHZVIDCOFKWQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/JUIBGGNJBHVD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/YZYBKZLRYPLJ</td>
</tr>
</tbody>
</table>

Europe (London):
arn:aws:controltower:eu-wes t-1::control/forecast/YBNNIYMRBIYNYMRBIYNYMRBIYN

Europe (Stockholm):
arn:aws:controltower:eu-north-1::control/JHZVIDCOFKWQ

Asia Pacific (Mumbai):
arn:aws:controltower:ap-south-1::control/JUIBGGNJBHVD

Asia Pacific (Seoul):
arn:aws:controltower:ap-northeast-2::control/YZYBKZLRYPLJ
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/LIFOKTEDIUJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/DQVZDZGYRISN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/GVXMGJZQXQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/PISDHZLSRYXL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1:control/CT.AUTO.SCALING.PR.83058</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east:1::control/LMMGXHIXUJYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3::control/HFDQZK01U7PA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3::control/UBFEQJTBFA7Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1::control/YTPNKYLJYKVY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/CT.AUTOSCALING.PR.83059</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/YVPF FBYVWOYU</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/AEHEFPZQXLUW</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/SA CRRCECVZND</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/QI RLBHLADKAB</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/PSRD UBINGKQS</td>
</tr>
</tbody>
</table>
### Control identifier

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

#### Asia Pacific (Hyderabad)
- **arn:aws:controltower:ap-south-2::control/DKHBSPQGATGW**

#### Middle East (UAE)
- **arn:aws:controltower:me-central-1::control/FJYUYTKCFRPF**

#### Asia Pacific (Melbourne)
- **arn:aws:controltower:ap-southeast-4::control/CVLVWHPNFDHV**

---

### CT.AUTOSCALING.PR.9

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

- **NIST 800-53 Rev 5 CA-9(1)**
- **Encrypt data at rest**
- **US East (N. Virginia)**
- **arn:aws:controltower:us-east-2::control/CT.AUTOSCALING.PR.9**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
<td>controltower:us-east-1::control/RROOJIJVZTCD</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>controltower:us-east-2::control/ITCMHPHPFUUS</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>controltower:us-west-2::control/XAJKDEPPKMLS</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>controltower:ca-central-1::control/GJMTGWEQYCFK</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/XCDSJCAJAGY</td>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/MMTQYBWZFN</td>
<td></td>
</tr>
<tr>
<td>:control/MMTQYBWZFN</td>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/JQDQQJXOGNO</td>
<td></td>
</tr>
<tr>
<td>:control/JQDQQJXOGNO</td>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/XEPRSGZCLSZI</td>
<td></td>
</tr>
<tr>
<td>:control/XEPRSGZCLSZI</td>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/UIHDQDEKPNFW</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-1::control/RUZQHTXLDRVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1::control/PLFOJFSZJQRR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/ TXADDEAXHQJO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/ VNUBXQIEBAGA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/EXRJI TRPLSJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::control/XOIVX LXSTMHC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::control/XHEBB MZWBBUF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::control/XHMWN RXPSSECC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sou t-3::control/thest-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CRAVIZGSUZNW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/SDWSYCVWCGEH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/GMSB KMGNTIRU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/PJFB BOZDWXVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/EPWS VXENIYJF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/TG PNJGPMKKAF</td>
</tr>
<tr>
<td>• <strong>Europe (Zurich)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/VM YTQLGGELEGN</td>
</tr>
<tr>
<td>• <strong>Europe (Spain)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/HXLT CQISFQBE</td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/PVJJ TCCPQERK</td>
</tr>
<tr>
<td>• <strong>Middle East (UAE)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/AUTOSCALING.PR.9 3067</td>
</tr>
</tbody>
</table>
### CT.CLOUDFORMATION.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDFORMATION.PR.1 | None | • Protect configurations | • **US East (N. Virginia)**  
  arn:aws:controltower:us-east-1:control/WTDSMKDKDNLE  
• **US East (Ohio)**  
  arn:aws:controltower:us-east-2:control/FMBVJTKQAEAE |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/DKKMAWVORGDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/OMCTIJOASMIZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/UHAFTVUQLBJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/VQJENYWQLIKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/IE BSHSUWVLNW</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/XLSIR LRDKWVQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/CPQMWT UWNTTTQN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/RTHC FFNNCBIC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/ZNYK RMJOMGMD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Control identifier

### Framework

### Control objective

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-2:control/ AZAYRJYXCXZR</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-1:control/ TUJJPJIYTMNX</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong>&lt;br&gt;arn:aws:controltower:eu-west-3:control/ PXUHPQAIVTCU</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong>&lt;br&gt;arn:aws:controltower:sa-east-1:control/ QZWDNTRQVJKO</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong>&lt;br&gt;arn:aws:controltower:us-west-2:control/ C1T3071</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:ctroltow er:af-sou th-1::con trol/OBRU JGFHLWTL</td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:ctroltow er:me-sou th-1::con trol/RBUI YPEKFWAQ</td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:ctroltow er:il-cen tral-1::c ontrol/XW TPZYNDKZAN</td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:ctroltow er:eu-cen tral-2::c ontrol/ZY KOUZYVAXVL</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### CT.CLOUDFRONT.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDFRONT.PR.1     | • NIST 800-53 Rev 5 AC-17(2)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 IA-5(1)  
• NIST 800-53 Rev 5 SC-12(3)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-23  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-8  
• NIST 800-53 Rev 5 SC-8(1)  
• NIST 800-53 Rev 5 SC-8(2)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 1.2.1 | • Protect configurations | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/XDNLXQXCMXXF  
• US East (Ohio)  
ar:aws:controltower:us-east-2::control/IQSRCUCSGFPK  
• US West (Oregon)  
ar:aws:controltower:us-west-2::control/AVEFYTUYGGS  
• Canada (Central)  
ar:aws:controltower:ca-central-1::control/TQHOWLDDEHMD |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/HGEUZPXSVDOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/PHMWMCANHKSW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/ZWIHYGTQCIQA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/UAUKDTHXFEXN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>

- PCI DSS version 3.2.1 1.3
- PCI DSS version 3.2.1 1.3.1
- PCI DSS version 3.2.1 1.3.2
- PCI DSS version 3.2.1 1.3.4
- PCI DSS version 3.2.1 1.3.7
- PCI DSS version 3.2.1 4.1
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-2::cont rol/KRZLJ NJUOPAE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/MYOO HWLVKUVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/JURDJLNESWGR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/VBJDOHQSIIAX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XPNZKJLGPXQA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/ITCBS0QOBUDP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/XOWFTDERUYHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/IWQIWQREBLHB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/MKJZCQJTJTUU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/TOOGKKNIZTGI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-north-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KFBJHZDCITRT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MLF0FPIEQPDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZKNGGEQJFJEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:bahrain:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ontroltower</strong>&lt;br&gt;<strong>er:me-south</strong>&lt;br&gt;<strong>th-1:control/RUGA</strong>&lt;br&gt;<strong>OBODEZXQ</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong>&lt;br&gt;<strong>arn:aws:controltower:il-central-1:control/WW</strong>&lt;br&gt;<strong>AUIVWORXWH</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong>&lt;br&gt;<strong>arn:aws:controltower:eu-central-2:control/JS</strong>&lt;br&gt;<strong>THUABMXZDZ</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong>&lt;br&gt;<strong>arn:aws:controltower:eu-south-2:control/WUYN</strong>&lt;br&gt;<strong>TGJJKKNP</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;<strong>arn:aws:controltower:ap-south-2:control</strong></td>
</tr>
</tbody>
</table>

---

**Control identifier**

**Framework**

**Control objective**

**Control API identifiers, by Region**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDFRONT.PR.10 | • NIST 800-53 Rev 5 SC-7(11)  
• PCI DSS version 3.2.1 1.2.1  
• PCI DSS version 3.2.1 1.3  
• PCI DSS version 3.2.1 1.3.1 | • Enforce least privilege  
• Protect configurations | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/MKKANNMZZHNU |

CT.CLOUDFRONT.PR.10

Middle East (UAE)  
arn:aws:controltower:me-central-1::control/VQHIYFLOJLMC

Asia Pacific (Melbourne)  
arn:aws:controltower:ap-southeast-4::control/AZRIXJRPZEGB
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/WCTTAVHVMYDLS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/IJBYZPYEBBPL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/EMBBJOEZUXI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/XSFJGHXKKXJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------</td>
<td>------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>controls</td>
<td>er:ap-south-east-1::control/TJJCFOZERMMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/TTYLBMYES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/COJLJAOYFIY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/EDDBQAMFSHML</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/KEBVYBUGDCJL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-south-1::control/DPDNFOCWKPXR</code></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-northeast-2::control/YBHTLDHKEKFZ</code></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-northeast-1::control/RFCFGQXJZARA</code></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-west-3::control/JSCPKF85PTUFX</code></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:sa-east-1::control/RFCFGQXJZARA</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower e:sa-eas t-1::cont rol/XHRXF SGXWPKZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong> arn:aws:cont rolower e:us-wes t-1::cont rol/GQNIW WFCXLMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong> arn:aws:cont rolower e:ap-eas t-1::cont rol/RMFPW FTBHEUW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong> arn:aws:cont rolower e:ap-sou theast-3: :control/ RNEBJKBKTWYNP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong> arn:aws:cont rolower e:ap-nor</td>
</tr>
</tbody>
</table>

CT.CLOUDFRONT.PR.10
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3: control/ HPIJWRRRNZWV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/ZSTTBVOTUCTJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/QOUFOYZMAHTP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/CRMYILUZFQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/KKJWKODDJAJZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/RI ZVPUMYJMKF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/UTNK PVFYDNWY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/NCQF JEHLNVOL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central-1::control/NREVUZZCXLORX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------</td>
<td>---------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>CT.CLOUDFRONT.PR.11</td>
<td>• NIST 800-53 Rev 5 AC-17(2)</td>
<td>• Manage vulnerabilities</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/JKSWKPYLWXBN</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/FRBHAAKLXVJQ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 IA-5(1)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/YXRLGXTHKYZT</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>Canada (Central) arn:aws:controltower:ca-central-1::control/ROXJWPKIJIHGJ</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/OLKKBIYGTITV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/PWKKNYCLONTW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/00IGLWRNRDLBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/IAUDC MRWXYWY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2::control/INVK WIIXCUX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/OEQB OVEXMMKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south th-1::control/LATR CFDQWVIN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-north east-2::control:ICESDVPQWHI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/HFHBNWIGHFMY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/HAPUSNWOPEXI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/RAYNZKHYBP AZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/VDNOLOGKWONY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/03091CT.CLOUDFRONT.PR.11</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:ap-east:1:control/RKEOFHWPSMRG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/EBMFFONQCPFD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/VZFSUGKCIKSL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-1:control/ACOA LEKSBVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:controltower:af-south-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/HYED NWKAQEGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/MIPX RQLYILUE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/FV QEUPCJHDGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/PD SOEASQXLDH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/CAMA UZYMJOPH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-------------------------------------</td>
</tr>
</tbody>
</table>
| • Asia Pacific (Hyderabad)  
    `arn:aws:controltower:ap-south-2::control/MFLJ BHYHDJZA` | | | |
| • Middle East (UAE)  
    `arn:aws:controltower:me-central-1::control/FT GLJNMLYHZT` | | | |
| • Asia Pacific (Melbourne)  
    `arn:aws:controltower:ap-southeast-4:control/CQEDLAWQDAEX` | | | |

**CT.CLOUDFRONT.PR.2**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDFRONT.PR.2 | • NIST 800-53 Rev 5 SC-7(11) | • Protect configurations | • US East (N. Virginia)  
    `arn:aws:c` |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1:control/WPBVZXCJPXBZ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>arn:aws:controltower:us-east-1:control/MLHMBKFPSTQQT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2:control/UIWBDZNONLUD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1:control/RU MPJMCNCJW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ NMGEPJROACOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific</td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Singapore)</td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Framework</td>
<td>er:ap-southeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control objective</td>
<td>:control/ JPIDQBIFWBWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>objective</td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Framework</td>
<td>er:eu-central-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control objective</td>
<td>YICHURUJDBK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Framework</td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control objective</td>
<td>er:eu-west-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>SPJYD XWVBVHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>objective</td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Framework</td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control objective</td>
<td>er:eu-west-2::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>TZHFM CSVNUQB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/AKXTQWFSQTVQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/SDPQNYINEQRA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/O00YJOANCXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/BMFRHKRDLPYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:controlVTSPO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JEHAKZN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>South America</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:controlPGPGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MEKOYTP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:controlSBRPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JEJCGTL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:controlJYTOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OYSNLMB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Asia Pacific (Osaka)**  
  `arn:aws:controltower:ap-northeast-3::control/SLGAANKAFEYA`

- **Europe (Milan)**  
  `arn:aws:controltower:eu-south-1::control/TOJRWDYHNNXG`

- **Africa (Cape Town)**  
  `arn:aws:controltower:af-south-1::control/JTUVGABKLAFE`

- **Middle East (Bahrain)**  
  `arn:aws:controltower:me-south-1::control/SEODAVXUYYKF`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/EN WFNBADPKG</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/XK AFLKSMRCTZ</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/HPUR LNWRKJWL</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/KPXX RYKIBWCP</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/EN WFNBADPKG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/EN WFNBADPKG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.CLOUDFRONT.PR.3</td>
<td></td>
<td>Encrypt data in transit</td>
<td>arn:aws:controltower:us-east-1::control/KSCPLCGJKGHW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/RFNNWXVMUBPQ</td>
</tr>
</tbody>
</table>

**CT.CLOUDFRONT.PR.3**

- NIST 800-53 Rev 5 AC-17(2)
- NIST 800-53 Rev 5 AC-4
- NIST 800-53 Rev 5 IA-5(1)
- NIST 800-53 Rev 5 SC-12(3)
- NIST 800-53 Rev 5 SC-13
- NIST 800-53 Rev 5 SC-23
- NIST 800-53 Rev 5 SC-23(3)

- Asia Pacific (Melbourne)
  arn:aws:controltower:ap-southeast-4::control/HAXVFQCZVWMZ
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/LHFZBEUHUBMH</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/YXRNFYZICBAZ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/MCQETJVLFUOU</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/JLXONOZWHECI</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Europe (Ireland)**
  - arn:aws:controltower:eu-west-1::control/OI
  - WLNKZULIHF

- **Europe (London)**
  - arn:aws:controltower:eu-west-2::control/AGJSNVMSVMZW

- **Europe (Stockholm)**
  - arn:aws:controltower:eu-north-1::control/KFVEGDRDKNYI

- **Asia Pacific (Mumbai)**
  - arn:aws:controltower:ap-south-1::control/OCRRDMBCTTPP
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/MKLFHIWIEWWR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/TMYDUSKTAKBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/YDQTLQWZBPX0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/LJBMFILEKDJH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:northeast-1:control/JHBMFQWZBPX0</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/QSWVH IUPCHAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/DDVLB NVHGDUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-soure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ ISFZIBFIGEYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ YQYFXRCGOJVL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:c ontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-souv</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::con</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/HPKH JFQXJAEV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/EOVQ XRLMTYED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/SQZN ZFSSBJQD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/AF QUJTLNZOZD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/LR ZZVKQUSKFK</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/CVMB TUQQJQVF</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/NJQT YERBVBJI</td>
</tr>
<tr>
<td>(Hyderabad)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/HI CXKNXMCXCZ</td>
</tr>
<tr>
<td>(UAE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/TYWUXNEGBHGC</td>
</tr>
<tr>
<td>(Melbourne)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.CLOUDFRONT.PR.4 | • NIST 800-53 Rev 5 CP-10  
  • NIST 800-53 Rev 5 SC-36  
  • NIST 800-53 Rev 5 SC-5(2)  
  • NIST 800-53 Rev 5 SI-13(5) | • Improve availability | • US East (N. Virginia)  
  arn:aws:controltower:us-east-1::control/TTGXTDSTFUVR  
  • US East (Ohio)  
  arn:aws:controltower:us-east-2::control/BCDVICOTHADR  
  • US West (Oregon)  
  arn:aws:controltower:us-west-2::control/RFYXXYNURHWK  
  • Canada (Central)  
  arn:aws:controltower:ca-central-1::control/CXLHFJBBESPG |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/ELYJMXPJVKEI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/RADLRUNIIXJV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/PPDPQKYCVQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/WJKMTILNPQPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes-t-2:control/LEHRPQBGFKSI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor-th-1:control/KLXWEEBCGMDJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/HPOI0KYDFMZE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/GFFYUYUVPDKU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Europe (Paris)**
  `arn:aws:controltower:eu-west-3::control/GWBOIBMMAAVZC`

- **South America (São Paulo)**
  `arn:aws:controltower:sa-east-1::control/LULEEEVQWEQRC`

- **US West (N. California)**
  `arn:aws:controltower:us-west-1::control/IUIGCLTOJBUC`

- **Asia Pacific (Hong Kong)**
  `arn:aws:controltower:ap-east-1::control/WJKRCBQFHZMZ`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/IPCYTHQFAFNW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3::control/DTOFJQVJFLRM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-southeast-1::control/OEGLEOAAPISRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-southeast-1::control/VXRYQOGVHSUW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-southeast-1::control/VXRYQOGVHSUW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>arn:aws:controltower:me-south-1::control/BSHP WYCFNNBE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:il-central-1::control/LL UWIDQCLSL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-central-2::control/OM EWBMVICXJG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-south-2::control/LEXJ MWZMLIVI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-south-2::control/LEXJ MWZMLIVI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-south-2::control/LEXJ MWZMLIVI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Israel (Tel Aviv)**
- **Europe (Zurich)**
- **Europe (Spain)**
- **Asia Pacific (Hyderabad)**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDFRONT.PR.5 | • NIST 800-53 Rev 5 AC-2(4)  
• NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AC-6(9)  
• NIST 800-53 Rev 5 AU-10 | • Establish logging and monitoring | • US East (N. Virginia)  
ar:n:aws:controltower:us-east-1::control/RSBKBJHVwOCY |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/EMCHZAZDZNVL</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/MAPJFIKMJJKD</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/ZYDBRRMVTZV</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/COFQNFPVIJLDJ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/PHURBUCASOCZAV</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td>Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/XZRMWOAQCX</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower:eu-west-1:control/IZAPHTX</td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower:eu-west-2:control/NWKZMIUZNFKT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/JNBLGPSROEFQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/QDMUYVEFHYOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/CGZWLZPDWIMX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/EDSGIRTYZHTA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/CZAGHRZSABRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/QDMLKQERZSABRN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-eas-t-1:control/RXASZFBDGWEX</td>
</tr>
</tbody>
</table>
|                    |           |                   | • **US West (N. California)**
<p>|                    |           |                   | arn:aws:controltower:us-wes-t-1:control/TBJTNHJFQFRV |
|                    |           |                   | • <strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltower:ap-eas-t-1:control/HGFGDWIJHIUM |
|                    |           |                   | • <strong>Asia Pacific (Jakarta)</strong> arn:aws:controltower:ap-south-east-3:control/XRYUQXKTPXYZ |
|                    |           |                   | • <strong>Asia Pacific (Osaka)</strong> arn:aws:controltower:ap-nor |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:control/ NRRJRTUJBKRO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1:control/LHGULLYNLWNF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1:control/HZEA IHLPXGDG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1:control/PBAO GWJQTIKW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1:control/ID POYYEWWDAK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/DA AOJZCWCNLC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/PTDU OCAXIHAE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/JPFM NYTBXSIX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central-1::control/QD FYIJJARBVP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
</tbody>
</table>

---

**Control identifier**: Unique identifier for the control.

**Framework**: Context or environment within AWS Control Tower.

**Control objective**: Specific objective or goal associated with the control.

**Control API identifiers, by Region**: ARN (Amazon Resource Name) identifiers for each region, specifying the control's API.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDFRONT.PR.6 | • NIST 800-53 Rev 5 AC-17(2)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 IA-5(1)  
• NIST 800-53 Rev 5 SC-12(3)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-23  
• NIST 800-53 Rev 5 SC-23(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-8  
• NIST 800-53 Rev 5 SC-8(1) | • Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/QFQNKHNDSHBP  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/LQDIWJWUTSM  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/EQUIZKHISXPN |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/LL IUTEJBMGHE</td>
</tr>
<tr>
<td>SC-8(2)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/IYBPCXPFECFI</td>
</tr>
<tr>
<td>SI-7(6)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/TUIUKMPMAEUD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/MA ELDXBVMXCM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/MA ELDXBVMXCM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/OBRSK EKWVRVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower er:eu-wes t-2::control/NJJKC OAWJJJM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower er:eu-nor th-1::control/LOAX FPPQRMCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower er:ap-south-1::control/SWGZ ZGILWLWS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower er:ap-northeast-2::control/MCPECPGYPPZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-northeast-1:control/YFRQGLAWSBZU</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-west-3:control/APQPRHGKFWYO</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:sa-east-1:control/WMHKGFLJAWPI</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:us-west-1:control/HYJHPFVKHDY</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-east-1:control/YFRQGLAWSBZU</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:ap-eas t-1:control rol/LEONX WJLQTYM</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltow er:ap-sout heast-3: :control/ SAEWMKRDHMRO</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltow er:ap-nor theast-3: :control/ WBMVRQPRAOQX</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltow er:eu-sout h-1:control/HYEC MJHMDQA0</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltow er:af-sout h-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/MEVR AVQYQCBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/QWHD DIDDVRIX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/RL NLTYXPMQNQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/LT KLSWPOPLNR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/GKTD SYXJURPB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/EWCU LHXPMCBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/CG QNUYCOSGYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/BHNUHFPPNUTC</td>
</tr>
</tbody>
</table>

**CT.CLOUDFRONT.PR.7**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDFRONT.PR.7 | • NIST 800-53 Rev 5 CA-9(1) | • Encrypt data in transit  
• Improve availability  | • US East (N. Virginia) arn:aws:controltower:ap-south-2::control/EWCU LHXPMCBD |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>ontroltower::us-east-1::co::role/SFIAO/WRGHFHB</td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 4.1</td>
<td></td>
<td>ontroltower::us-east-2::co::role/ZQXCM/IVMKIAA</td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>ontroltower::us-wes-1::co::role/SUXMG/ZJXERLV</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>ontroltower::ca-central-1::co::role/EY/UKXNOQHBVC</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>ontroltower::ap-southeast-2::co::role/Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AQDUDHILVQNE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific</td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ XFODQONNCCMG</td>
</tr>
<tr>
<td>Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td>arn:aws:controltower:eu-central-1:control/FLFNIUITMQCJ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td>arn:aws:controltower:eu-west-1:control/PJOCVKGBLJJL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (London)</td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td>arn:aws:controltower:eu-west-2:control/HVCNXRUCMQUQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/AMBU PGBVMSRB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/BYQG XIDVQDFM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/KYIFISGDQAHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/PVAWACSEUZOC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/VKCEN IKDHWLI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas t-1::control/TKNLP UTAFIBQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes t-1::control/XDXYMIJWXNWH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas t-1::control/FOMSS EIEPEIR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-east-3:CT.CLOUDFRONT.PR.7</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FEOXIQQBHYQN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/UHYZMCZNNITK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/LANXJNMROUBG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/OIQLPXBBDAEF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/JDWMKBYCFRRZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>

- **Israel (Tel Aviv)**
  `arn:aws:controltower:il-central-1::control/VQ BHQOYFACWB`

- **Europe (Zurich)**
  `arn:aws:controltower:eu-central-2::control/UE TNVSJMZFDB`

- **Europe (Spain)**
  `arn:aws:controltower:eu-south-2::control/CUEQ JGENOTAN`

- **Asia Pacific (Hyderabad)**
  `arn:aws:controltower:ap-south-2::control/UPTA BJLZLULD`

- **Middle East (UAE)**
  `arn:aws:controltower:me-central CT.CLOUDFRONT.PR.73133`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDFRONT.PR.8 |           | Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/YPZYC  
TALWZLK  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/KQTKK  
FCMSTJR |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| NIST 800-53 Rev 5 SC-7(4) | | | • US West (Oregon)  
ar:aws:controltower:us-west-2::control/DIFDZPKTUXZR |
| NIST 800-53 Rev 5 SC-8 | | | • Canada (Central)  
ar:aws:controltower:ca-central-1::control/FZHDAFBJJMXP |
| NIST 800-53 Rev 5 SC-8(1) | | | • Asia Pacific (Sydney)  
ar:aws:controltower:ap-southeast-2::control/FWXCSWFYXMCI |
| NIST 800-53 Rev 5 SC-8(2) | | | • Asia Pacific (Singapore)  
ar:aws:controltower:ap-southeast-1::control/XKYWAPJWATKR |
| NIST 800-53 Rev 5 SI-7(6) | | | • Europe (Frankfurt)  
ar:aws:controltower: |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/VCVFZRIJCQUZ</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/CNNZUYODKIDH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/YPHHSQJLWYQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/HLXSOZZDWMJN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/CFFXQUJBTGPR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Control API identifiers, by Region

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia Pacific (Seoul)</td>
<td>Asia Pacific</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td>Asia Pacific</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td>Europe</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>South America (São Paulo)</td>
<td>South America</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>US West (N. California)</td>
<td>US West</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
</tbody>
</table>

- **Asia Pacific (Seoul)**
  - arn:aws:controltower:ap-northeast-2:control/DNSOBLSOWZBO
- **Asia Pacific (Tokyo)**
  - arn:aws:controltower:ap-northeast-1:control/VSBTGO0GYBBH
- **Europe (Paris)**
  - arn:aws:controltower:eu-west-3:control/ONPPIEAALZUC
- **South America (São Paulo)**
  - arn:aws:controltower:sa-east-1:control/APWMSFWSKMFJ
- **US West (N. California)**
  - arn:aws:controltower:us-west-2:control/CT.CLOUDFRONT.PR.8
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-wes:cont/NTBEMAA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-east:control/RTJQE:CKEXLQP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-south:control/UCOWSXPWKCCI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-nor:control/FFUABXMEWYYC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south:control/CT.CLOUDFRONT.PR.83138</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/JLXI NGWIDTUJ</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/ROHX SITDLDWI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/XBLM ALRLBRNO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/CY VPKLRvwmsa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/DC SIOMFMHOTM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/ZVQCJXIKMXIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/DWTWKHVWMSSMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central-1::control/JMUEZJBIBXOG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-4::control/ADCTWWSZWZTS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| CT.CLOUDFRONT.PR.9 | • NIST 800-53 Rev 5 AC-17(2)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 IA-5(1)  
• NIST 800-53 Rev 5 SC-12(3)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-23  
• NIST 800-53 Rev 5 SC-23(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-8  
• NIST 800-53 Rev 5 SC-8(1)  
• NIST 800-53 Rev 5 SC-8(2)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 4.1 | • Manage vulnerabilities | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/XCQMS00M00KF  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/HXXCDBIITXOE  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/DOQSQVALBFCM  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/OJPYIMZXXWMN |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/MRNNWKOBUFW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/BJDRLQQZJKZL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/IZKULFXRTZNU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1:control/NBUGVULZANXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/PZBIGNJZQZWK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/GITAQKSEJDXV</td>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-wes:t-3:control/rol/EUOWQ/LXWFGNQ</td>
<td></td>
</tr>
<tr>
<td>:control/GITAQKSEJDXV</td>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-eas:t-1:control/rol/AHXYZ/HBAZBFH</td>
<td></td>
</tr>
<tr>
<td>:control/GITAQKSEJDXV</td>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-eas:t-1:control/rol/KYETO/GMXUJPF</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/VFZMJZENUMGT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/LFPEMXYIZGOG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/HYDVIHSNUJK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/UMSU0DJDGNE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/UMSU0DJDGNE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/MSBI HIZOYSWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/LC DMMMAPSTOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/YM JHSAINUZQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/MVBZ HLFJEXGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.CLOUDTRAIL.PR.1 | • CIS AWS Benchmark 1.4 3.7  
• NIST 800-53 Rev 5 AU-9  
• NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6) | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/EPNCR EENAXLY |

**CT.CLOUDTRAIL.PR.1**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/CTXDBBKXWFYM</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/RBOKYZWNIEEH</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/LADQHOPWFDQE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/MQTVMQFRAQQV</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:asia-pacific</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>er:ap-southeast-1:control/LDWQNCXTIA</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1:control/QH BXOKOYNIQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1:control/GNPFA AZFPLUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltower:eu-west-2:control/ZWQEG GDWHBMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-1:control/FRHF JVRAPTRV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/YVIVTCSBKNZW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/IYMKUWMIFVNY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/VFEZPSFUCMNK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/KDFZJGDKJDXF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:ap-south-4:control/CT.CLOUDTRAIL.PR.13150</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>us-east-1::control/AZGUT SGKCXJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (N. California) arn:aws:control:us-west-1::control/CJBDB OPJYMYK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:control:ap-east-1::control/JLCBX YFLJKYT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:control:ap-southeast-3:control/JQROQRCXWACD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:control:ap-northeast-1::control/</td>
</tr>
</tbody>
</table>

CT.CLOUDTRAIL.PR.1  3151
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/XXBNGWACEEJO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1:control/JHSHFWNLVDKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/CAZMRVABNVNZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1:control/VFHCZZBNLJYD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1:control/LGMUXCEBWVNU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/IW XMEFRDIKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/YZFA LBBJBJHW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/KFUHHOBQFSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/PH FHRPTBFXEU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltow</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------</td>
<td>----------------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>CT.CLOUDTRAIL.PR.2</td>
<td></td>
<td>Protect data integrity</td>
<td>US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/RAAHJHHQSMWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/XFIDQGGGOMTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/SPIMIJLBSCTG</td>
</tr>
</tbody>
</table>

**CT.CLOUDTRAIL.PR.2**

- CIS AWS Benchmark 1.4 3.2
- NIST 800-53 Rev 5 AU-9
- NIST 800-53 Rev 5 SI-4
- NIST 800-53 Rev 5 SI-7(1)
- NIST 800-53 Rev 5 SI-7(3)
- NIST 800-53 Rev 5 SI-7(7)
- PCI DSS version 3.2.1 10.5.5
- PCI DSS version 3.2.1 11.5
- PCI DSS version 3.2.1 2.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
|                    |            |                   | • Canada (Central)  
                        |            |                   | arn:aws:controltower:ca-central-1::control/KAEEWMVGTQBG |
|                    |            |                   | • Asia Pacific (Sydney)  
                        |            |                   | arn:aws:controltower:ap-southeast-2::control/DTIKKBFJWTRD |
|                    |            |                   | • Asia Pacific (Singapore)  
                        |            |                   | arn:aws:controltower:ap-southeast-1::control/VLNMMTWXFFIR |
|                    |            |                   | • Europe (Frankfurt)  
                        |            |                   | arn:aws:controltower:eu-central-1::control/RJSEMBTEORTH |
|                    |            |                   | • Europe (Ireland)  
<pre><code>                    |            |                   | arn:aws:controltower |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/ZBAVT AQOIBMN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2::control/ZMDJH YXAERWW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/YAJI WBETKSKD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/XOLQ DYEYNFBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/MXWILHEXRJPT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-1::control/ PNBCQSECEGYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong>&lt;br&gt;arn:aws:controltower:eu-west-3::control/QCMJJQGTGECE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong>&lt;br&gt;arn:aws:controltower:sa-east-1::control/GDFPFDORPG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong>&lt;br&gt;arn:aws:controltower:us-west-1::control/KFQRNLMNZDUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-2::control/ PNBCQSECEGYV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/IEIDA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MYBJTSE</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VLSEDZSWLNNN</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BQ00BSDU DOJOY</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/OBWF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NAETCXTZ</td>
</tr>
<tr>
<td>• Africa (Cape</td>
<td></td>
<td></td>
<td>Town) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/ARRM QAOVUILW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/DWLS TPHLZRRX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/JY FTEXMMRZCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/XY VNASPEROZE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/GDQDYHIWOYJV</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
---|---|---|---
CT.CLOUDTRAIL.PR.3 | CIS AWS Benchmark 1.4 3.4 | Establish logging and monitoring | US East (N. Virginia) arn:aws:c
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AC-2(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-7(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-9(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AKRKBPXLHCR0</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/DGZZTHPBWAJX</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/BEFMOHIMGMYG</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/EMTYLMYRYEDC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/MFOJ TUROQZPI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/AFDQ MHYCXZPG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/QUBSRGSNRUTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/GUMXCBJWOVUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::cont rol/BBEOD OCLACOK</td>
</tr>
<tr>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::cont rol/HXNJH OVBCEQW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::cont rol/TZTIT SLDPMHU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::cont rol/BCJQM HEYTIGX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sou theast-3:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RIRMCQIIIAWT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific</td>
<td>Arn:aws:controltower:ap-northeast-3:control/NDEJIGGFJIKIR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Milan)</td>
<td>Arn:aws:controltower:eu-south-1:control/HDBBNLSSWFJN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Africa (Cape Town)</td>
<td>Arn:aws:controltower:af-south-1:control/RHLOQRXGMGBQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle East (Bahrain)</td>
<td>Arn:aws:controltower:me-south-1:control/BPYRAXQYLBFP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/KG ZPEYILUFXN</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AL HFFPPGDKFH</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/GCVI UCRKZJR</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/YCGK IQTAMTUJ</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
## CT.CLOUDTRAIL.PR.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDTRAIL.PR.4 | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SC-7(10)  
• NIST 800-53 Rev 5 SI-7(6) | • Encrypt data at rest |  
• US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AUDOYQMVIFSG  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/OOPJJACQOFUS |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/MIAFWDCLTQFG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/QDLDUFIKRTAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/CTOCGYRSDLYB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/NCGCPHKAILMF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/WG WYSUAMWvWN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/BIDXZ LOVTAPH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/YRILA MGJGTFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/GUOV VFIECKHB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/UQXT LQQUVMRO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/RFBRGAFCHGRH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/DJVAKGGZOBGG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/HDTLDOKSVHCS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/NOFOPVIFERIB</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

|  |  |  | ontroltower er:us-wes t-1::contro l/ARZVF S0FFRNH |
|  |  |  | • Asia Pacific (Hong Kong) arn:aws:c ontroltower er:ap-eas t-1::contro l/CFOQQ BAUVZYH |
|  |  |  | • Asia Pacific (Jakarta) arn:aws:c ontroltower er:ap-sou theast-3: :control/ GBLIBFBFWEWJ |
|  |  |  | • Asia Pacific (Osaka) arn:aws:c ontroltower er:ap-nor theast-3: :control/ PRBKENAXOJXR |
|  |  |  | • Europe (Milan) arn:aws:c ontroltower er:eu-sou th-1::con |


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/CQII WIZRIDXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/HLHW SRJCEYDM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/UQUA ZOGJVRPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/KVTMFVMCHBSK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/YR WHYIEUGKWK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:controltower:eu-south-2::control/EQJLPBKNWCEW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td>arn:aws:controltower:ap-south-2::control/AWBL ELLPBPBZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td>arn:aws:controltower:me-central-1::control/YD PEPIRVMRSF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Melbourne)</td>
<td>arn:aws:controltower:ap-southeast-4::control/FDRWVVLULZAD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## CT.CLOUDWATCH.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDWATCH.PR.1 | • NIST 800-53 Rev 5 AU-6(1)  
• NIST 800-53 Rev 5 AU-6(5)  
• NIST 800-53 Rev 5 CA-7  
• NIST 800-53 Rev 5 IR-4(1)  
• NIST 800-53 Rev 5 IR-4(5)  
• NIST 800-53 Rev 5 SI-2  
• NIST 800-53 Rev 5 SI-20  
• NIST 800-53 Rev 5 SI-4(12)  
• NIST 800-53 Rev 5 SI-4(5) | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/SSXFCVHAAYDY  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/RAMYQIPCOQPV  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/TKCJNPHIDFHI  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/VQRWIUPQXDNG |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
|                    |           |                  | **Asia Pacific (Sydney)**  
|                    |           |                  | arn:aws:controltower:ap-southeast-2:control/MOWBJMXOIHSB |
|                    |           |                  | **Asia Pacific (Singapore)**  
|                    |           |                  | arn:aws:controltower:ap-southeast-1:control/EFYIPKXIMWCM |
|                    |           |                  | **Europe (Frankfurt)**  
|                    |           |                  | arn:aws:controltower:eu-central-1:control/OBVWNWNIFK |
|                    |           |                  | **Europe (Ireland)**  
|                    |           |                  | arn:aws:controltower:eu-west-1:control/YPSCURHMDGL |
|                    |           |                  | **Europe (London)**  
<p>|                    |           |                  | arn:aws:controltower |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/EDZSIQLZSHQT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/SFQH EJLEUAUE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/VZQEAYLRUVEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/JWZXOWQPDALC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/JWZXOWQPDALC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DZZBWHYOVWZH</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::controls/GVINKYTHSTYG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America</td>
<td>arn:aws:controltower:sa-east-1::controls/YKLBLDSNIPAT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N.</td>
<td>arn:aws:controltower:us-west-1::controls/YSCEYMWJPDXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hong</td>
<td>arn:aws:controltower:ap-east-1::controls/JASXXRCJAGRM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kong)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/EHGRDSWJBZRD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/XFTUWPJDDHWR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/FQUBDDOCHVXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/NSZIACKXZCWU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
</tbody>
</table>
|                    |           |                   |   arn:aws:c
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/AMVX VAUISMIH</td>
</tr>
<tr>
<td></td>
<td>Israel (Tel Aviv)</td>
<td>arn:aws:ontroltower:il-central-1::control/UN HKBRUEDJVG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe (Zurich)</td>
<td>arn:aws:ontroltower:eu-central-2::control/IG PKWKCRTQSA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe (Spain)</td>
<td>arn:aws:ontroltower:eu-south-2::control/IYZC FYKTL0EZ</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asia Pacific (Hyderabad)</td>
<td>arn:aws:controltower:ap-south-2::control</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.CLOUDWATCH.PR.2</td>
<td>• NIST 800-53 Rev 5 AU-10&lt;br&gt;• NIST 800-53 Rev 5 AU-11&lt;br&gt;• NIST 800-53 Rev 5 AU-6(3)&lt;br&gt;• NIST 800-53 Rev 5 AU-6(4)</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia)&lt;br&gt;arn:aws:controltower:us-east-1::control/HTUKCDNXPVWK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/KZLHFSHUXRWF</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-12</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/ZOBNLPHKPKDK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.7</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/VPXBCTGURFRG</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/HEBNGALBPYWJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QUYKUYVWNWSZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UR QEHVTSKLLB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TBWHZ GGFAGCX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DNHPG CXFAJST</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-northeast-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DSVH TVHFRNRE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/JPDU0XRODBEG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/TYKALNIDLUXK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/SBTRQDFYDCOK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/QCSZCQYGUVNZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:ap-south-3::control/QCSZCQYGUVNZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-eas::control/ACYWMNWHXDKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west::control/ZWPLHRTNEWRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east::control/FBRQUVHBOZPB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/VNUHTQRCTWLU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/VTQRCTWLU</td>
</tr>
</tbody>
</table>

CT.CLOUDWATCH.PR.2 3184
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control://UZOKBNYSYZIW</td>
</tr>
<tr>
<td>• <strong>Europe (Milan)</strong></td>
<td>arn:aws:controltower:eu-south-1::control/OZCLFSHTISCQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Africa (Cape Town)</strong></td>
<td>arn:aws:controltower:af-south-1::control/MDSOCYVCKKCT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Middle East (Bahrain)</strong></td>
<td>arn:aws:controltower:me-south-1::control/VEWMLILFDETBBA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td>arn:aws:controltower:il-central-1::control/EOFQUOHCADL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/DAUDMKIGRGOZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/DPZXVQALXSBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/UEJEPFFSZUBW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/PLDXKXQWHHCV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower</td>
</tr>
</tbody>
</table>


## CT.CLOUDWATCH.PR.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CLOUDWATCH.PR.3 | - NIST 800-53 Rev 5 CA-9(1)  
- NIST 800-53 Rev 5 CM-3(6)  
- NIST 800-53 Rev 5 SC-12(2)  
- NIST 800-53 Rev 5 SC-13  
- NIST 800-53 Rev 5 SC-28  
- NIST 800-53 Rev 5 SC-28(1)  
- NIST 800-53 Rev 5 SC-7(10)  
- NIST 800-53 Rev 5 SI-7(6)  
- PCI DSS version 3.2.1 3.4 | - Encrypt data at rest | - US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/ZHZBTTZMZYST  
- US East (Ohio)  
arn:aws:controltower:us-east-2::control/UEXYNAIAHTWI  
- US West (Oregon)  
arn:aws:controltower:us-west-2::control/RVGRWIMSJKPB |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/RZ UDTGQNQLRSG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/YHKYBCWCRLJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/AHEQLQIVIOWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/GSZUCKWWMLZM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes t-1:control/GVVBW CAAOCTC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-wes t-2:control/ZSQDF IHSSAOD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-nor th-1:control/VZXNAZZKVVEJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1:control/OTGQBKNMWNKV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/CT.CLOUDWATCH.PR.3 CWBBUWULYLOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-1:control/WYEDDRSFQTDY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong>&lt;br&gt;arn:aws:controltower:eu-west-3:control/WQCLCWXDFYLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong>&lt;br&gt;arn:aws:controltower:sa-east-1:control/CYXHPOXPXBWZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong>&lt;br&gt;arn:aws:controltower:us-west-1:control/CZEVEPANZGQK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-1:control/WYEDDRSFQTDY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:ap-eas t-1::controlo/QAJHGR GEGPDMX</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:c ontroltower er:ap-sou theast-3: :control/ TGZQHFRKWOOF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:c ontroltower er:ap-nor theast-3: :control/ AZANGKXVSQGH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:c ontroltower er:eu-sou th-1::control/ ORYX UPSLDOOT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:c ontroltower er:af-sou th-1::con</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/OLDF VUGRRHUK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/ELINFWHYRXRZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/GMIMEPVINIBZZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/TMUERIGFSBVJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/SYOYMUBLETAN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.CLOUDWATCH.PR.4</td>
<td>• NIST 800-53 Rev 5 AU-6(1)</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/RFQBNRCEIKA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(5)</td>
<td></td>
<td></td>
<td>ontrolltower:us-east-1::control/CTRLJSMHQBT6</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
<td>arn:aws:controltower:us-east-2::control/XFOXFHKLWHURZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/LLRWYTMFYUFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/IOQUGWNHEDSO</td>
</tr>
</tbody>
</table>
| | | • Asia Pacific (Sydney) | arn:aws:controltower:ap-southeast-2::
<p>| | | | |
| | | | |
| | | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CLDCBWOSIAUL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/ISMLVCTXZGYF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/OOGEPDLGDWEM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/APPYZPTNBLGO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/XRRBPFVFHMAFT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1:control/FKOIMKGDPJBQ</td>
</tr>
<tr>
<td>Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/IHHAKHRDLOGU</td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/CFAQBJOYCLFH</td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/AEHEUFZDKJQD</td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/HPAIE IOARUEQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/VCHSA LJJXEQI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/UQPZK KDGYZCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/THAF DHKOGZJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ VKHCXDMGU00K</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ YHLIYCNCGUAA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-1:control/JULH FFNMMHXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-south-1:control/EKMH YJGVZCHG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1:control/YCKCT TTEXWPSW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong>&lt;br&gt;arn:aws:controltower:il-central-1::control/OGCHPVUOWVJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/UHOAJRVIPLHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/SBRKWJRBLSDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/TRQTFJOZZE0F</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| CT.CODEBUILD.PR.1 | • NIST 800-53 Rev 5 SA-3  
 • PCI DSS version 3.2.1 6.4.4  
 • PCI DSS version 3.2.1 8.2.1 | • Use strong authentication | • US East (N. Virginia)  
 arn:aws:controltower:us-east-1::control/JIMFDXMPGGVRADHWFC  
 • US East (Ohio)  
 arn:aws:controltower:us-east-2::control/XMPGGVRADHWFC |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong> arn:aws:controltower:us-west-2::control/DTOSZTSXGA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1::control/RSYHWKEXHCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2::control/SCDVMCSBZZBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1::control/RDSUWXNODESZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower</td>
</tr>
</tbody>
</table>

CT.CODEBUILD.PR.1 3201
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/OZ CLPKRV0VHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/NCDYZ QYYXIMF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/CZYKF OXDXOAE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/LAPQ RZRTCBBL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/PMZE KQNVBRKZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/XWOSMSCORYXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/EUUKRLJQRWDI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/LFQQPETWUEWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/PMRWC_RVSHCSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/PMRWC_RVSHCSO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-sou</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-south-3:control/LGGSSRBGSUS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-south-3:control/LGGSSRBGSUS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-south-3:control/LGGSSRBGSUS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan) arn:aws:controltower:eu-south-3:control/LGGSSRBGSUS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/MKNR UEOIFDIO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltow er:af-sou th-1::control/WVYQ ZRGTLWHG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltow er:me-sou th-1::control/POTJ CWBCWTKI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltow er:il-cen tral-1::control/OD CFYBUSVHPI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltow er:eu-cen tral-2::control/JP CHEZJSIYJJY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/TLIZGYOSLXID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/BGONJAEQQODC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/YSLFINUPIWAR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/LXVUSLOKWAYD</td>
</tr>
</tbody>
</table>
## CT.CODEBUILD.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.CODEBUILD.PR.2</td>
<td>• NIST 800-53 Rev 5 IA-5(7)</td>
<td>• Use strong authentication</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-t-1::control/EJNHNFZRAMFG</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SA-3</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-t-2::control/QFRBXZNMGMLD</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-t-2::control/WWHTDFQNALJW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/SCRYBKUZHBYQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/CDUPZGSWHYDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/FTDDOMZPCICH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/DDVQLINSURBW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/WEYMGWEYMSAO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/QZKDW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OTRWSLC</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-northern-1:control/NACQ</td>
<td></td>
<td>KIAAXFRVP</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southeast-1:control/MVSG</td>
<td></td>
<td>VYHINMLZ</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/</td>
<td></td>
<td>EOOAPASTMJSET</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DCWLYNEJULNR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/control/FHZHY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YESCQDF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/control/SIANV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CWRXGWJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/control/WTHWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RJZZ0OW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/control/VYDLJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EUYORHK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/JTEUUMXIUPM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/YPIAEPNIINQG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/JEUDKXERRMYB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/GCSG HXXWTVIO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/GCSG HXXWTVIO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower::me-south::control/BNEG CEZBVNSJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong>&lt;br&gt;    arn:aws:controltower::il-central::control/MB MBIGGAVEJN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;     arn:aws:controltower::eu-central::control/QG KVBMJEDJEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;      arn:aws:controltower::eu-south::control/WZHI VERTKNMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;    arn:aws:controltower::ap-south::control/WZHI VERTKNMT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-2(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-6(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-7(8)</td>
<td>PCI DSS version 3.2.1 10.1</td>
<td>PCI DSS version 3.2.1 10.2.1</td>
<td>PCI DSS version 3.2.1 10.1</td>
</tr>
</tbody>
</table>

- **US East (Ohio)**
  - arn:aws:controltower:us-east-2::control/UCDPPZLBJEGBZ

- **US West (Oregon)**
  - arn:aws:controltower:us-west-2::control/MJRSPBWBBIWW

- **Canada (Central)**
  - arn:aws:controltower:ca-central-1::control/ZNXNBMTCHFPQ

- **Asia Pacific (Sydney)**
  - arn:aws:controltower:ap-southeast-2::control/QYCIHTAXYLTZ

- **Asia Pacific (Singapore)**
  - arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/ VBDUMCPMLQTK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td>Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/UT FBCSBSISVW</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower:eu-west-1:control/EBCCR SBQVOEK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-west-2:control/LTEOH IIZTPFH</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-northeast-1:control/BGMC KUYVIAAXA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/OWJXWKPQUCCW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/BYCWXWCVCFOP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/YFGOV00KMZXQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/QNQUMYVIDFEX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-east-1:control/KQRSGHFYHVUK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1:control/VEHXVCDHACPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1:control/KOZNXUGUJOXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/WKTXNANZYYLB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

CT.CODEBUILD.PR.3 3217
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:control/MRUGSCUAOCAC</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1::control/AQXBXHQXXZESG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/DMZLXFFHATNX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/VUBG TNAZWXKR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/GIFAWZCWRHNS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/CM IJYJCFEKWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/DGQL WMRIBAOA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/KEFQ CWMQBGJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central-1::control/CK DSLYLCJQRL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>CT.CODEBUILD.PR.4</td>
<td>• NIST 800-53 Rev 5 AC-2(1) &lt;br&gt;• NIST 800-53 Rev 5 AC-3 &lt;br&gt;• NIST 800-53 Rev 5 AC-3(15) &lt;br&gt;• NIST 800-53 Rev 5 AC-3(7) &lt;br&gt;• NIST 800-53 Rev 5 AC-5 &lt;br&gt;• NIST 800-53 Rev 5 AC-6 &lt;br&gt;• NIST 800-53 Rev 5 AC-6(10) &lt;br&gt;• NIST 800-53 Rev 5 AC-6(2) &lt;br&gt;• PCI DSS version 3.2.1 8.2.1</td>
<td>• Enforce least privilege</td>
<td>&lt;br&gt;• US East (N. Virginia) &lt;br&gt;arn:aws:controltower:us-east-1::control/RBXKFZQEPSP &lt;br&gt;• US East (Ohio) &lt;br&gt;arn:aws:controltower:us-east-2::control/PTLLJYJYUZQ &lt;br&gt;• US West (Oregon) &lt;br&gt;arn:aws:controltower:us-west-2::control/DHCOAMLWMMKYM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/OG BAKFMGJPZY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/XWXSPGHBLRFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/KHJHMUSOSACW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/BI INKIXJANDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1:control rol/DWJNN CZPNFQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:control tower er:eu-wes t-2:control rol/CLQMY JURODBG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:control tower er:eu-nor th-1:control/ MUHK WSBZQHHX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:control tower er:ap-south-1:control/RWTL UYFSMXLC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:control tower er:ap-northeast-2:control/PBJCHJANZLVP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/JONXRDZNMTAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/ZNKDUDRGIXPO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/DLHTVNXDNFN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/NMOEJRZEUSOQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-china:control/JONXRDZNMTAS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/LSZKD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JYXOE</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/MCOFGYCDXMLZ</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/RANLWUOVCFVOF</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/VMQVAYCAMXDO</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/LSZKDJYXOE</td>
</tr>
</tbody>
</table>

CT.CODEBUILD.PR.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/FBQA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NITCHZIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/JWRR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ISIIXXRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/LE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PJHHBLGBBT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/FR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GCRBYCUDID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/WJDA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AHKATGVQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.CODEBUILD.PR.5</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
</tbody>
</table>

**CT.CODEBUILD.PR.5**

- **Asia Pacific (Hyderabad)** arn:aws:controltower:ap-south-2::control/NXUQZRZNLASB
- **Middle East (UAE)** arn:aws:controltower:me-central-1::control/BT LAOICLUOUL
- **Asia Pacific (Melbourne)** arn:aws:controltower:ap-southeast-4::control/ZGJLFAZSANHF
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/OJSTE TVYFKHE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/XELBX ZJFBGYK</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/NTHPU LVMAKSY</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/KJE0AYEPVAWT</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/YKADOBILMOXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/FP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CUVSCXOALO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/HSYKY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LVTHMSC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/WLFHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AHNSJRK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/KST0QHLUUMAB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/ZUBAPDKBHPEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/JIRHXXYRRCPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/QMYRAUAAQSPG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes-t-3::control/CUBUE WNCWWLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas-t-1::control/EOQMR PVCYIVQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes-t-1::control/GMPAD QDKO0SS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas-t-1::control/X00YS BYTMVEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IIQ0EVFKXQUA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/BILMNUNVKGQU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/XIPONLRXVTLJM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/EWFVDYKGEDQMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/YZAEAAYHVZTZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/RF RJCMVGRGLK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/PV MESLBTIORK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/EZED ZUYHEOZT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/ETTG KYPZHDWE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
## CT.CODEBUILD.PR.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.CODEBUILD.PR.6  | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 10.5 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1:control/WEEX0KNMKWFK  
• US East (Ohio)  
arn:aws:controltower:us-east-2:control/ARXGHZDJMVEV |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.5.2</td>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/ ZYXLY AIYZXWK</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/LW ZACZNXEWF</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/ BKDGPCXEHUYM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/ LJAFCKIMTDGT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/LJXNLOULCHOC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/RRRKAZCWMWYC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/TUDOZOFBNLBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/NKXXSZNQJNAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/XFEBDNHXUVOK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/MFNMFPARKBBF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/RXRLKZGUXBFQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/YLCNQJWSXLBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/UFNUWPKHJXLL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/CT.CODEBUILD.PR.63236</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowert:us-wes:control/AWLHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CDELWPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowert:ap-eas:control/DQVTQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LQFTTBT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowert:ap-sou:control/RCUQGUPBRITK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowert:ap-nor:control/BJZEVENBVKMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:eu-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowert:eu-sou:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CT.CODEBUILD.PR.6</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/LKLE VOQIMCUV</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/LXQD TRHEMKEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/PKBW TCMwQOAH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/AG OYHKVDQPPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/SD LNCTLECQXF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/NKJSJVWJEWECR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/SRRAJIIMEVGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/MCNFLNKWOTMGG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/BBRKFCDWFUGLH</td>
</tr>
</tbody>
</table>
## CT.DAX.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.DAX.PR.1        | • NIST 800-53 Rev 5 CA-9(1)                                                 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1:control/EMIZNBUBWZST |
|                    | • NIST 800-53 Rev 5 CM-3(6)                                                  |                   | • US East (Ohio)  
arn:aws:controltower:us-east-2:control/PWENJMKYDFLI |
|                    | • NIST 800-53 Rev 5 SC-13                                                     |                   | • US West (Oregon)  
arn:aws:controltower:us-west-2:control/LIDITLCMTBXF |
|                    | • NIST 800-53 Rev 5 SC-28(1)                                                  |                   | • Asia Pacific (Sydney)  
arn:aws:controltower:ap-southeast-2:control/WQDLGHQPLUEZ |
<p>|                    | • NIST 800-53 Rev 5 SC-7(10)                                                  |                   |                                                                 |
|                    | • NIST 800-53 Rev 5 SI-7(6)                                                   |                   |                                                                 |
|                    | • PCI DSS version 3.2.1 3.4                                                   |                   |                                                                 |
|                    | • Encrypt data at rest                                                        |                   |                                                                 |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/QWQALHIYPODD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/USAYUGMVGVCZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/HPQCLFNNHNVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/YQFMN RBYQZUH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southwest-1:control/USAYUGMVGVCZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-1::control/IPCT FYGTPJQK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/YJPSKRTFOVNI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/PBMMRKGQLQSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/XUCCOZBWAWDU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US West (N. California)</td>
<td>arn:aws:controltower:us-west-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/OQJDQ HXHVHYQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltower:ap-east-1::control/YERSB EZNALIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong> arn:aws:controltower:ap-southeast-3:control/MAULWZ0V8HAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong> arn:aws:controltower:ap-northeast-3:control/AVRDIKUBVIEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1::control/AHWD GTQANTPZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/RKQE TEUGOLZT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1:control/TJAY EVJIIWMC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1:control/ME QGYHFODNJQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2:control/WE RBGVNLRWCP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:controltower:eu-south</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-2::control/XTNH YZREDREV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south:th-2::control/HDSP SOQHQADH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/DN VHZNVNIVFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/RYLGGCGVEELG</td>
</tr>
</tbody>
</table>
### CT.DAX.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.DAX.PR.2</td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Improve resiliency</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-2(2)</td>
<td>• Improve availability</td>
<td>arn:aws:controltower:us-east-1::control/SBKTB SUWMKEK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/XOLXW DXOTSDS</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/BXXBF HSEQZVC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/JU NTGFKWFFJA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/YLPPVNACLIDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/LSYCOPMQSAQK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/WYPOTMKGGRTF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/GTNFGAXVMTIY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/UDVRX ZWEHJLQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/LKWS OIJNZRRT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/KIAD SEVTATNK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/MCGGZQJDOCSEG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

- CT.DAX.PR.2

3248
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KCZJTMRTLPZH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/RDIXQ0RVUYTX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/WKKCRCZYVOYA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/GPIACDHSJUVO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/SDXGBJAMZIIPN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/HGXHJVIRQSTJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/UNTRGVLZHGWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/SILHLNRKXURR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/QVZKAJFUMHFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:il-central-1::control/GH AECZAUNGWM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/SG SXAYLHNUSK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-central-2::control/RQKT ASYXHVYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-central-2::control/RDUK UALNEVNU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/RY EAAPJMVRTI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
</tbody>
</table>
| CT.DAX.PR.3         | NIST 800-53 Rev 5 AC-17(2) | Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/JSRQEOOLHCHQ |
|                    | NIST 800-53 Rev 5 AC-4       |                                 | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/OUEBONYIBDEN |
|                    | NIST 800-53 Rev 5 IA-5(1)   |                                 | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 SC-8</td>
<td>✓</td>
<td></td>
<td>✗</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-8(1)</td>
<td>✓</td>
<td></td>
<td>✗</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-8(2)</td>
<td>✓</td>
<td></td>
<td>✗</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-7(6)</td>
<td>✓</td>
<td></td>
<td>✗</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 2.3</td>
<td>✓</td>
<td></td>
<td>✗</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 4.1</td>
<td>✓</td>
<td></td>
<td>✗</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 8.2.1</td>
<td>✓</td>
<td></td>
<td>✗</td>
</tr>
</tbody>
</table>

- **Canada (Central)**
  - arn:aws:controltower:ca-central-1::control/BYNSAWVHNTAJ

- **Asia Pacific (Sydney)**
  - arn:aws:controltower:ap-southeast-2:control/JCLDMNDGRTR

- **Asia Pacific (Singapore)**
  - arn:aws:controltower:ap-southeast-1:control/VNHFUCIAKSX

- **Europe (Frankfurt)**
  - arn:aws:controltower:eu-central-1:control/KJQULRXQPSVI
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrol/XR LXMRYIIIGWI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:1:control/ZDNAT WERTBBL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:2:control/NUXYWFVUJBLH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north:1:control/DBOHJEJMYNWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south:1:control/ACWSAQRXMAPJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/QSNXKOZMYMFR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/KANMRMPWOUQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/VXDLDZAZJHUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/HVXEDWNTFVJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/HSYVXNQJOZMFR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:us-wes t-1::cont rol/EFBZV LOIFTYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong> <code>arn:aws:controltow er:ap-eas t-1::cont rol/OWWBU IFRTHWC</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong> <code>arn:aws:controltow er:ap-sou theast-3: :control/ BHRDSDRZCZYS</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong> <code>arn:aws:controltow er:ap-nor theast-3: :control/ BBMUTVSRZXPV</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong> <code>arn:aws:controltow er:eu-sou th-1::con</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/EXAC LWANURZW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:af-south-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PWUH XPBZI0RO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/EKWO VFGGQRQF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:il-central-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>/YW BDCWQRVAPI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:eu-central-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>/OO LZDMSTRWYG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/CJQFLUNIGRDW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/BEFHHEFAMIGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/UYJFPVBTWOWY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/XTHSONULVJIP</td>
</tr>
</tbody>
</table>
## CT.DMS.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.DMS.PR.1</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td>• Enforce least privilege</td>
<td>arn:aws:controltower:us-east-1::control/TZMIGTNDHQVL</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/VSDWQVWSEVHU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/TEUGLLCMRFBE</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/XXXIGZQSIPVK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/ZERDIGHMXMHK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/FVTCTPBWHDTL</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/OMLKCPQPSJTR</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/YCHPEYBHXVBF</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes:t-2:control:WGOOQPQGGTCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor:control/LEXIGWTCMJSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-sou:control/UICXSEVCABSW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-nor:theast-2:control:PMXDPQYQXVY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-nor:theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CTFMRJPUPGCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/EOSDY NKIGAWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/XOKBS YBQKJOK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/TSMFX MFCPLVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/QAPCP DZHYEBF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/CXVEO0HIMNNL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3::control/CPG0CDMDHGFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/OPSWXXYSYUMY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/UNWEFSWVLQTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
</tbody>
</table>
|                    |           |                  | arn:aws:c

CT.DMS.PR.1 3263
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/ZWSG RHYTXZSN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/HZ SULTIXLIGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/UM VTLBCRRGKV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/TGGY QCVRDMF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>-------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/EUCL HHUYDEEC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower me-central-1:control/control/LT SKNULFPUTG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Melbourne)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower ap-southeast-4:control/ROMIMQWYAGFD</td>
</tr>
</tbody>
</table>

**CT.DMS.PR.2**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.DMS.PR.2</td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td>Encrypt data in transit</td>
<td><strong>US East (N. Virginia)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>controltower us-east-1:control/ORQVP</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td>INRLMOY</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/RAJOOXRIMDFG</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/AZMPQPEABVJQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/Q0JPATDAWFRO</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/CHWMZWDERDLU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ WSXHLSUCKDGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower er:eu-central-1:control/JNVNWEUIOGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower er:eu-west-1:control/LUJEQBWKCVDA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower er:eu-west-2:control/APLZCDFPGPZO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower er:eu-northeast-1:control/YAKMSVKKUHUU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/TCEDVKZNCHKW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/WKNUSICBMQOV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/SQLHUPEXUOKU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/UFYAUPRMCMWX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/TCEDVKZNCHKW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower sa-eas t-1::control rol/CRIBT OSVESOT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong> arn:aws:controltower us-wes t-1::control rol/CKDDW AKTYAFR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltower ap-eas t-1::control rol/GLHME PNCYUSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong> arn:aws:controltower ap-southeast-3:control ENVXMQEWHFBX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong> arn:aws:controltower ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control/ WDERYMNSGMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1::control/ZXTHNNMVRRGT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/FESPIXJA0ULK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/OJGKHKSDWGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/NPTLETTIZUMD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/GYUMGMJBEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/XGZXZOCUAKPP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/YRGKYVHVRBSL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central-1::control/WTREEFQIYYYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
</tbody>
</table>

## Control identifier | Framework | Control objective | Control API identifiers, by Region
---|---|---|---

### CT.DOCUMENTDB.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.DOCUMENTDB.PR.1 | - NIST 800-53 Rev 5 CA-9(1)  
- NIST 800-53 Rev 5 CM-3(6)  
- NIST 800-53 Rev 5 SC-13  
- NIST 800-53 Rev 5 SC-28  
- NIST 800-53 Rev 5 SC-28(1)  
- NIST 800-53 Rev 5 SC-7(10)  
- NIST 800-53 Rev 5 SI-7(6)  
- PCI DSS version 3.2.1 3.4  
- PCI DSS version 3.2.1 8.2.1 | - Encrypt data at rest | - US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/THVIKWXJQCEB  
- US East (Ohio)  
arn:aws:controltower:us-east-2::control/AGSEOYNXOSRK  
- US West (Oregon)  
arn:aws:controltower:us-west-2::control/HXVOHNCIJRUC |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/USQEVLMNYIR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/LVZG0WHNFFQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/XUVXIHBPXAAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/X0BYNMAVPBFP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/UWYKA UHSRUKZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2::control/CFNPI FZENDEO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/CMAI LYDYAUOY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-sou th-1::control/NJTD QSHRSPIM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/TEZXETAGKYOT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/EONQZXNXGAPB</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/ACFERMCUQLYD</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/NSSWQWRWJNFM</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/TRACDWLKDRI</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-east</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/NDCSW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MCFZFWK</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:c controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BMNUBLZWWWWA</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:c controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FIHFPXXSWPVR</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DTKB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FEIQNVQl</td>
</tr>
<tr>
<td>• Africa (Cape</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town)</td>
<td></td>
<td></td>
<td>arn:aws:c controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>trol/AIQL WAENCEVZ</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/GVXHDHLTISRP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/ZKHDGAAGCYFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/UFMCCFRSISYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/AIUTNQWKGFDR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.DOCUMENTDB.PR.2</td>
<td>• NIST 800-53 Rev 5 SI-12</td>
<td>• Improve resiliency</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.1</td>
<td></td>
<td></td>
<td>ontroltower:us-east-t-1::control/ARZAKWMXIVIC</td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-t-2::control/ZIBRXZXDXMYK</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-t-2::control/XIHJTNHDRQAF</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/NURHQPDKMITF</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/YDRKNNEUEWMB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UIHMUQNGECFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ND0ASXOMEPEPNB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DVXWRDHUPOPR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HBAHNXQKSECW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • Europe (Stockholm) `arn:aws:controltower:eu-north-1::control/UATWYHSUXSUYN`
|                    |           |                  | • Asia Pacific (Mumbai) `arn:aws:controltower:ap-southeast-1::control/XDKECWMGYWQSY`
|                    |           |                  | • Asia Pacific (Seoul) `arn:aws:controltower:ap-northeast-2::control/CMOMYYELJWTTW`
|                    |           |                  | • Asia Pacific (Tokyo) `arn:aws:controltower:ap-northeast-2::control/UIXMPMAVSMSSO`
|                    |           |                  | • Europe (Paris) `arn:aws:controltower`


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control JXPLM TUAETRJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower sa-eas t-1::control GCAWC OVHNP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower us-wes t-1::control VTWYH TWZJXDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower ap-eas t-1::control HTINN LWMXRAD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/NTKVAPLDGPIE</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3: :control/TYKSQTKVDRPU</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1: :control/AFQCMISIBNZC</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1: :control/XDBEA0QGFZQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1: :control/LBGOTUKVIBIY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/TL EHFGYBIPPV</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/YMMXEICWPZQC</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/NOKR KREQWEPP</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/WAJS GCIJCGCH</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---

**CT.DYNAMODB.PR.1**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.DYNAMODB.PR.1    | • NIST 800-53 Rev 5 CP-10  
• NIST 800-53 Rev 5 CP-6(2)  
• NIST 800-53 Rev 5 CP-9  
• NIST 800-53 Rev 5 SC-5(2)  
• NIST 800-53 Rev 5 SI-12  
• NIST 800-53 Rev 5 SI-13(5)  
• PCI DSS version 3.2.1 3.1 | • Improve resiliency | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/OIZVLCBZARKX  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/MMOPKUVAJYZD |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong> arn:aws:controltower:us-west-2::control/FEOCX MTUXONR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1::control/MU UOXHEGOERO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2::control/HYEXGEAODQCG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1::control/BQIMDWJDEKLB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/PU HTGIFRKSNJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower:eu-west-1::control/EZQDF KIPCMHL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-west-2::control/NWUTQ TYYDZBH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-north-1::control/CYGI LLICLUBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/RMGE YQOKBYAT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/SICGAIHKEQSW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/YLNVMSVQPP0W</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/ZZZATCBZSQZS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/OWRFVRAEHORK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/OWRFVRAEHORK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:us-wes t-1:cont rol/AOEAJ RZQUOJU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controltower er:ap-eas t-1:cont rol/IGOUA MZMJLPQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower er:ap-sou theast-3:control/XAWHUFNRRUXO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controltower er:ap-nor theast-3:control/CRICQPHNTAAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower er:eu-sou th-1:control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/CXPU RYMVYMSC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/XHWT LSZDRHZD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/ZRRE DRAAHQUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/IK NHTZWYSGUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/DM UBHZWCMKBV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/EFNQ ESSMTRWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/CUNO ZJCLCDXS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/UP BXICUCG0PG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/HOSCJVRPLNZP</td>
</tr>
</tbody>
</table>
## CT.DYNAMODB.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.DYNAMODB.PR.2</td>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td>Encrypt data at rest</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/AVPWTCQJVZFL</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 3.5.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CM-3(6)</td>
<td>NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-28(1)</td>
<td>NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(10)</td>
<td>NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SI-7(6)</td>
<td>NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 3.4</td>
<td>PCI DSS version 3.2.1 3.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 3.5.3</td>
<td>PCI DSS version 3.2.1 3.5.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 8.2.1</td>
<td>PCI DSS version 3.2.1 8.2.1</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:ap-southeast-2:control/MXJNGHQYSQWT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:ap-southeast-1:control/VATDYITSDFZT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:eu-central-1::control/CBZJAPZHXFDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:eu-west-1::control/VNDWOJRWDJIZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>er:eu-west-2::control/RIBSF</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>VFNWIAR</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-nor</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>th-1::control/IADW</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>VKAFGXUW</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:ap-south</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>th-1::control/WZFV</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>BOYAOMIH</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:ap-nor</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>theast-2::control/PGHDRCMDDFER</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:ap-nor</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>theast-1:</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>:control/CREBIEGAAVZS</td>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-wes:t-3:control/QVMDXANQFBCA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-eas:t-1:control/LZFDTLNKQXX</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-wes:t-1:control/HMMSCANOFBEX</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-eas:t-1:control/PRMTFXGWHHGM</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/PCYSWLZHMHPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/QFZXLJQCUPTB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-southeast-1:control/GCGXGJULMUJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-southeast-1:control/FWOEVCMMZRIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-southeast-3:control/GCGXGJULMUJR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/PBRY_EFBWDTSNV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:central-1:control/SW_UAFOBXZGSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.EC2.PR.1</td>
<td></td>
<td></td>
<td>CT.EC2.PR.1</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-21</td>
<td>Enforce least privilege</td>
<td>US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td>Protect configurations</td>
<td>arn:aws:controltower:us-east-1::control/NOTMRPTQNRAA</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• US East (Ohio)
  arn:aws:controltower:us-east-2::control/SMAKVTVJEPXO

• US West (Oregon)
  arn:aws:controltower:us-west-2::control/HAYOFUSRHZIZ

• Canada (Central)
  arn:aws:controltower:ca-central-1::control/HHAFBCZLQYXY

• Asia Pacific (Sydney)
  arn:aws:controltower:ap-southeast-2::control/IZBFOJRKBEV

• Asia Pacific (Singapore)
  arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/UKDFSIYPXFVJ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/ADABIOVNNTMS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/GFKNBAPONHXF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/WYVSVHJYIHAD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/UTXKBQQERGV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/OZFCKKRKZSIB</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/PRPQIPYUCLFE</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/YSQCFBUOTEPD</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/YAIRLGKSVPZS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/OZFCKKRKZSIB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::cont rol/IJAIP RTDFHRB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:c ontroltow er:us-wes t-1::cont rol/QEIYO NGZGVCI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltow er:ap-eas t-1::cont rol/PNKPP QYMTJFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltow er:ap-sou theast-3: :control/ PWXEQPXBWGJT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltow er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3: control/ RDUEMSJPXBWR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>

Note: The table lists the frameworks and control objectives along with their corresponding AWS Control Tower identifiers.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/IMRVGYQJLLW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/VNHGWWCSJWRA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/MTSLSKQKPIFR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/FEMJIFSFEJOI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.EC2.PR.10       | None      | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VAWEVAFBTTXY  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/ZXUWTNZZOQUI  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/MPXENLDJMR |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/CRBMNLMGBL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/PBNLHCGRZZ0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/XXRXMNFPARIR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/HPOMPECAFIAJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>er:eu-wes t-1:con trol/DBKJHDJXKWNY</td>
<td>• Europe (London) arn:aws:controltower er:eu-wes t-2:controlrol/CTADRPGOQIHX</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Europe (Stockhol m) arn:aws:controltower er:eu-nor th-1:controlrol/LAUHKWTATLXY</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower er:ap-sou th-1:controlrol/IUSDZWVDETIR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower er:ap-nor theast-2:control/GNMPIMBYNYKE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/PRVLLJPYMPYC</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/YJMLRIILGRBSE</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/VYTXCSGZXJJA</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/YCLJPFTXKZYU</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/YNJCGQXN</td>
</tr>
</tbody>
</table>

CT.EC2.PR.10
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-east-1:control/HISQJLSEBWSD</td>
</tr>
</tbody>
</table>
|                    |           |                  | • Asia Pacific (Jakarta)  
|                    |           |                  |  arn:aws:controltower:ap-southeast-3:control/GNBOOTBHQVG |
|                    |           |                  | • Asia Pacific (Osaka)     
|                    |           |                  |  arn:aws:controltower:ap-northeast-3:control/GBITMJKPAKCE |
|                    |           |                  | • Europe (Milan)           
|                    |           |                  |  arn:aws:controltower:eu-south-1:control/DNLPNFANEMRU |
|                    |           |                  | • Africa (Cape Town)       
<p>|                    |           |                  |  arn:aws:controltower:af-south-1:control/CT.EC2.PR.103309 |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/ZBXP GHGLMWXH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/KDLJUDSYZQNF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/TJMFMQWKSYRGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/EEVRMJQGHIIFB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/DCORPIATUVCG</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
---|---|---|---

#### CT.EC2.PR.11

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.EC2.PR.11</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>Control API identifiers, by Region</td>
</tr>
</tbody>
</table>
| • NIST 800-53 Rev 5 | Framework          |                   | Control API identifie
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>:control/HNTCZVIEEJOI</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/RAMFRPLQUWVMN</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/PDKCUGSWCJWF</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/RAMFRPLQUWVMN</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/RAMFRPLQUWVMN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/TXQC CBSQPFNBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/IRKW HFEJOBYB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/WOPJHTRSHFP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/ENUFAUVEZVFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::cont rol/AZQOR BOHZJMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::cont rol/BCNLW TEEHTHE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::cont rol/TLXGB VBTJUVZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::cont rol/GROFH QWVWGNJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CRATTP0FXYYCU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/VSDSWNNKPRRO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/RTEW MJEUHLJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/JCIT PFCDZUQI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/QXBA GIPQXETT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/PD CSLUSATDKY</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/RT MWZJPFHFER</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/SUUB DBBVLXLQ</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/TCPU TKECULUH</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.EC2.PR.12       | - NIST 800-53 Rev 5 AC-4(21)  
- PCI DSS version 3.2.1 2.2 | - Limit network access | - US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/QNDKUCEIGRNBCEIGRNB  
- US East (Ohio)  
arn:aws:controltower:us-east-2::control/IFRKPJEDMUUU |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong>&lt;br&gt;arn:aws:controltower:us-west-2::control/VHEHB5TESLGUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong>&lt;br&gt;arn:aws:controltower:ca-central-1::control/HJKXVHTKUFCEB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-2::control/DRPWGXJHMIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-1::control/INYDINMLKHF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/EB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SIWJJPVVBW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/SDYXHOVWBMMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/JWYSLVOEAOJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-northern-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/SIJDBTELNSUIN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southern-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/VEHFWJHVJKJNRG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/HFYUZFTNQRZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/YBIKCGWAORD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/JCOYUSWIRJX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/UDKUYKZVSBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-3:control/CT.EC2.PR.123321</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.EC2.PR.12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Asia Pacific (Hong Kong)**  
  `arn:aws:controltower:ap-east-1::control/WJSMEAZXXXVG`

- **Asia Pacific (Jakarta)**  
  `arn:aws:controltower:ap-southeast-3::control/UQOCEESBNNIF`

- **Asia Pacific (Osaka)**  
  `arn:aws:controltower:ap-northeast-3::control/DRLFKVUWERWU`

- **Europe (Milan)**  
  `arn:aws:controltower:eu-south-1::control/CT.EC2.PR.12`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/EPDE APQFUAPZ</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/ERDL IQVQFJJU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/PTDA RPFBEGAD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/TG QZBFRIVBZD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/VP 0JZQAASXUU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                   | • **Europe (Spain)**  
|                    |           |                   |  arn:aws:controltower:eu-south-2::control/CNCWXERYCOC |
|                    |           |                   | • **Asia Pacific (Hyderabad)**  
|                    |           |                   |  arn:aws:controltower:ap-south-2::control/HLEA KIWSBDXQ |
|                    |           |                   | • **Middle East (UAE)**  
|                    |           |                   |  arn:aws:controltower:me-central-1::control/NCITYDSETUMX |
|                    |           |                   | • **Asia Pacific (Melbourne)**  
|                    |           |                   |  arn:aws:controltower:ap-south-east-4::control/UBPYTWKIMQOK |
CT.EC2.PR.13

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.EC2.PR.13</td>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/FZSUCEEYAPWI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/ANUKCTRRCCEFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/BWUUBNNIBGXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/MTUNNERTAWUK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/OSVHEFPIYSYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/QZMARZRDZENJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/MYCUMPVJEXFZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/QCBNFLLWHORL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-west-2::control/ZJDKE ANFYUMV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu:eu-nor-th-1::control/ARMD LUGJAMIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/SSCK AJIEWDZ0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/OACEJPSHEDTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/OACEJPSHEDTT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/OHYRLAGKXSXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/BWHES_SZGTPFW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-1::control/HLGYB_XIMQRHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-1::control/BTLZS_JIHIZWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas-1::control/DTDHL_EWFGSKV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3::control/JYEUKJNOFJQT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3::control/ZBKKUULMNWGL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1::control/AYFZQOECAPER</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/QQXKJMHCUFTX</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle East (Bahrain)</td>
<td>arn:aws:controltower:af-south-1::control/QQXKJMHCUFTX</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/YOPB AHVWMVOA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/YC ZVKPCTQ00V</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/00 EZRXCQHBCZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/SZRC WAQMISFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.EC2.PR.14       | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28 | • Encrypt data at rest | • US East (N. Virginia)  
ar:n:aws:controltower:us-east-1::control/MQKNFAXJGETK |
<p>| | | | |
|                    |           |                  |                                   |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/VMCVOKHAOFHC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/AGCVMUHOLSMD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/CGSRRXAEBKDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/GRIQSOWFTUZO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: control/ GIIXBVQVAQTNT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower er:eu-central-1::control/RI ERQJRBCVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower er:eu-west-1::control/VBAWH SPRVFF0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower er:eu-west-2::control/TBTEU VAWFLJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower er:eu-north-1::control/KFIX EWHUEYPE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1:control/TUQFRYIKJBAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/WCOMSKMDNAFG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/LUUPJIKOPJWO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3:control/QTNFAGUGUTMHB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1:control/TUQFRYIKJBAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:control/IZAZFFYMGZOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1::control/IALX TISTUw WM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/PPWM LTWEAVHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/TKRO LDYAXJKI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/DNVFRNRLGAAP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/JYGVQKJQFJNI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/PWARGJRTRQXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/NAGYSJVVWTDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central-1::control/NYIKBWEVXMCID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/NAGYSJVVWTDS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>----------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.EC2.PR.15</td>
<td></td>
<td>• Protect data integrity</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Enforce least privilege</td>
<td>arn:aws:controltower:us-east-1::control/EKBEHJFEWPMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/LOEXLMDALOIF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/NIVMCMYSFNKG</td>
</tr>
</tbody>
</table>

**CT.EC2.PR.15**

**Control identifier**

- CT.EC2.PR.15

**Framework**

- NIST 800-53 Rev 5 CA-9(1)
- NIST 800-53 Rev 5 CM-2
- PCI DSS version 3.2.1 2.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/VL NRASMMQCCT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/HEEZTXAQNUXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/MLGHLUDGFFBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/ZA OAPDYMTBOO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-1:control/OGJDL YTMEUMV</td>
</tr>
<tr>
<td>Europe (London)</td>
<td></td>
<td></td>
<td>eu:eu-wes t-2:control/OWUFUVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Europe (London)**
  - `arn:aws:controltower:eu-wes:control/OGJDL YTMEUMV`  
  - `arn:aws:controltower:eu-wes:control/OWUFUVU`  
- **Europe (Stockholm)**
  - `arn:aws:controltower:eu-nor:control/JSDW JRIKGIEJ`  
- **Asia Pacific (Mumbai)**
  - `arn:aws:controltower:ap-south:control/WCLN DTTLLGBLC`  
- **Asia Pacific (Seoul)**
  - `arn:aws:controltower:ap-northeast:control/CKNBWALGPVDU`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower::ap-northeast-1::control/TJOEOWKONPTN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower::eu-west-3::control/UUXDVLGSYKWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower::sa-east-1::control/HNROLGCXXXVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower::us-west-1::control/VXSHNZFMMSKV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower::ap-northeast-1::control/TJOEOWKONPTN</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-east</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/QSCQVDJHEKMV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ORVERZAWCKRO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-north</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VWBDQCRJGCBV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DXGDLUEZMICZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/TLUQ UBLLKEWN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East</strong> (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/MAOA \ WNEEAXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Isreal (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/KK \ CNYSTPSDTM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/RR \ IIDIUCCWTB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/NHDZ \ BTZUXELQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.EC2.PR.16</td>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td>Protect data integrity</td>
<td>US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td>• Enforce least privilege</td>
<td>ontroltower:us-eas t-1::control/MALAS TZISXPG</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/YPFNZ AUCHUGK</td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/LVYDZ ONSHIBC</td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::central-1::control/MX JEQXYMIFJ</td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EWRFIOLHHUOD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/NCYJQJARMYXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/PHNEHTTRJBIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/PGCWQUDCXAJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/MIPGT0ZISOWW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/WAKWHQKMGGOF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/YAAAYGTOX00U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/CWVHKPAVXZHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/KUMQJAZMVWLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3:control/BIJJDUJCHVWQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1:control/USWDCD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1:control/GTBKAFMVAFYA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1:control/GUVGIHUKHMJX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-south-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/GTHXKJHCJEJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RPJHCTJTNST</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-1::control/KASY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NBCCNYUL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-south-1::control/WZVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VFGPTFYF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1::control/BJDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DDJKGDCQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/BYDZQXJUXHWB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/IRLXLBMFAIST</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/UHZJAZABJYWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/ATWN DZAYESGZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------</td>
<td>----------------------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>CT.EC2.PR.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT.EC2.PR.17</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Protect data integrity</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td>• Enforce least privilege</td>
<td>arn:aws:controltower:us-east-1::control/FPFKOPOEZRST</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/LVAJMRVLKXXVW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:**aws:controltower:us-west-2::control/JJBWMNJJXOLV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:**aws:controltower:ca-central-1::control/DWPXWTEDTUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:**aws:controltower:ap-southeast-2::control/SAIQVZXZKNBG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:**aws:controltower:ap-southeast-1::control/HRLZOUHQQYBC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:**aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-cen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tral-1::c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/WEFRJHTHWVV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ETEVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LKQLPUI0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/QPBHY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HIHIBIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/FYSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OJHWVNSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/VSQA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GVUGDSFC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltow er:ap-northeast-2: control/TWQUMHBQPEQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltow er:ap-northeast-1: control/YNGFYRMLIHYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltow er:eu-west-3: control/SLVMAGISUXIW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltow er:sa-east-1: control/OFWBU ELFVNW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltow er:us-west-1: control/</td>
</tr>
</tbody>
</table>

CT.EC2.PR.17 3354
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ct-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/HMCQC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>THXOJAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tower:ap-east</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ct-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/SSGQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SULIUCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/VYPANYUF0FAQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LAAWESZWTFBN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tower:eu-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/WAZW RSTLDPPD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/ZUUY MACFMBYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/KUGZ GUCJEEWT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/TP IAEPAYBIMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/JV SSYWHLGQNZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Europe (Spain)**
|                    |           |                  |   arn:aws:controltower:eu-south-2::control/NEFCDEMG50WZ |
|                    |           |                  | • **Asia Pacific (Hyderabad)**
|                    |           |                  |   arn:aws:controltower:ap-south-2::control/YVOTFUWYGJCL |
|                    |           |                  | • **Middle East (UAE)** arn:aws:controltower:me-central-1::control/DFDUSDEFRXGJ |
|                    |           |                  | • **Asia Pacific (Melbourne)**
|                    |           |                  |   arn:aws:controltower:ap-southeast-4::control/HVUAIMCVFGU |
## CT.EC2.PR.18

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.EC2.PR.18</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Protect data integrity</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/TOHTLYNBNKYYA</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td>• Enforce least privilege</td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/XBDTGEMIMJYY</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/RERWXDLVIIXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/FCQLVHMQUYEM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • Asia Pacific (Sydney)  
|                    |           |                  |  
|                    |           |                  |   arn:aws:controltower:ap-southeast-2:control/KFSYTINXOISA  
|                    |           |                  | • Asia Pacific (Singapore)  
|                    |           |                  |   arn:aws:controltower:ap-southeast-1:control/WLGOVQZCVMAX  
|                    |           |                  | • Europe (Frankfurt)  
|                    |           |                  |   arn:aws:controltower:eu-central-1:control/JWTQANYVKKRL  
|                    |           |                  | • Europe (Ireland)  
|                    |           |                  |   arn:aws:controltower:eu-west-1:control/CANOYGXZAKRK  
|                    |           |                  | • Europe (London)  
<p>|                    |           |                  |   arn:aws:controltower/ |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td>er:eu-wes:t-2::control/TOVXSJYBPSCY</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/BLHVJCEFKWFP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/PJAUVLXZJDJL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/NDQNZAIVSEGA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/NDQNZAIVSEGA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CT.EC2.PR.18 3360
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ OIHVTXVJSFLZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/XNFTR ACVSIJH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/TDOKHZLKLJIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/KNZWSVFOLGDW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/NTPRVWTJPLDH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/CXYLMYZHNKTA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/CHWQTIITHCLL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1:control/BIHF KAGSIGRM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/HCWC ESPXJIHW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1:control/HCWC ESPXJIHW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/YMTY KZEGMEVN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/KWCXRCDPQJFR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/QQPUOVYQOUFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/WNKTVRGNDUBE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/WNKTVRGNDUBE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.EC2.PR.19       | • NIST 800-53 Rev 5 AC-4  
                    • NIST 800-53 Rev 5 CA-9(1)  
                    • NIST 800-53 Rev 5 CM-2  
                    • NIST 800-53 Rev 5 SC-13 | • Encrypt data in transit  
                        • Protect data integrity  
                        • Enforce least privilege | • US East (N. Virginia)  
                                arn:aws:controltower:us-east-1::control/ULWNHDAVXSWD |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-23&lt;br&gt;• NIST 800-53 Rev 5 SC-8&lt;br&gt;• NIST 800-53 Rev 5 SC-8(1)&lt;br&gt;• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td>• US East (Ohio)&lt;br&gt;arn:aws:controltower:us-east-2::control/WHXHN BCLHZVK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)&lt;br&gt;arn:aws:controltower:us-west-2::control/HQVYJ HBVUYUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)&lt;br&gt;arn:aws:controltower:ca-central-1::control/TN QREQCHEREZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)&lt;br&gt;arn:aws:controltower:ap-southeast-2:control/RRIYZRBCSNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)&lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/RQZHICZBNKIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/XOAHAPWXPEJL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/DLHJFRBQIOUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/ESFZABHNGKFV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northern-1::control/TQYOHUVRBVLH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-1:control/GJAZFJQQYMYY</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-northeast-2:control/DKNVGKMOCFRK</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-northeast-1:control/IFTNPUBQDYXW</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-west-3:control/YUCZSOCFIITYL</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:sa-east-1:control/QPANEYQWQFQFQ</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::cont rol/PHGMD GBBZZVQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:c ontroltow er:us-wes t-1::cont rol/GHQNR DIDRRRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltow er:ap-eas t-1::cont rol/TRPSR CVRETKA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltow er:ap-sou theast-3::control/ LKNKZOMUUQZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltow er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3::control/PCKXSLRDWML</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/KXRITYOKIOLDG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/PVGFTIQERUKY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/CXDUKDCKMLAX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/OELBPSKEEGEA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/GTCJJWCENYCY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/JKALPJXNDEUJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/ZDTJVRYSTEYM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/DUGNRYPNSGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>
### CT.EC2.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.EC2.PR.2        | • NIST 800-53 Rev 5 CA-9(1)  
                    • NIST 800-53 Rev 5 CM-2  
                    • NIST 800-53 Rev 5 CM-2(2)  
                    • PCI DSS version 3.2.1 2.2  
                    • PCI DSS version 3.2.1 7.1.1 | • Enforce least privilege  
                        • Protect configurations | • US East (N. Virginia)  
                                         arn:aws:controltower:us-east-1::control/CVFETGCJNKXF  
                                         • US East (Ohio)  
                                         arn:aws:controltower:us-east-2::control/HFMYO0XSTPVC  
                                         • US West (Oregon)  
                                         arn:aws:controltower:us-west-2::control/GQRIEQCBOSSI |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/KL TLENUYLCHX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/ TPIXAIIDPGBY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/ TTTKTHOMEJGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/LD ZLIZEYHSBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/XOCHL LP00VTV</td>
</tr>
<tr>
<td>Europe (London)</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/YYGF VEDLRYTJ</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mumbai</td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td>arn:aws:controltower</td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td>Seoul</td>
<td>arn:aws:controltower</td>
<td></td>
<td>rol/UMDA UNXLFJJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/IQTLHSDAVPJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/SSTRQDHRJJFX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/AHSLJKRCKEVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/FLIITHQMTLZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south china-hong kong:control/CT.EC2.PR.23374</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-t-1:control/OXDEL/GPZPGWI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/NSYQYXIHEBWE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/UWVOMYBTMINT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1:control/TPMKJPKVEDNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/</td>
</tr>
</tbody>
</table>

CT.EC2.PR.2 3375
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/DUKU FDMKZNNE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East</strong> (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/RBSTYRGNTGHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/FRMAUAMPFCPJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:europe-central-2:control/CJVAWZZZEAFY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:europe-south-2:control/VHBUBKOEZTHI</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---

**CT.EC2.PR.20**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.EC2.PR.20       | • NIST 800-53 Rev 5 CA-9(1) | • Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-4:control/EC2.PR.20.1377 |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td>• Protect data integrity</td>
<td>ontroltowerer:us-east-1:control/PDFDBIRUZZZM</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td>• Enforce least privilege</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>arn:aws:controltower:us-east-1:control/OLCBWHURMETT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2:control/EMEHQZEQOKXY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1:control/AQALJJABNSXP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:custom-response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ WLRZMSULFIXM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AFBXGNHALNJJF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/SQNTAPQOUGNH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/SUARJCFCCBBQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/KLTLMNETYYCK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/RLGGIJOQHTWU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/JIIMKWUYJACB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/:control/BFORNBXJKDWW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/:control/JKUGSAKGLTHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::cont rol/REZIZ GDEHWRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::cont rol/MYAUS TBPZYAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::cont rol/UCNAD 0AQCDVL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::cont rol/BWQYY GYNTYTF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LDIQIPNXYDDU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/SQHOCRNSXEEJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/DYPMGYDYNEIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/HBPHHOIUVCIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/FQNDRWNEBQSL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/LH DZEXSDNLXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AP EAFKRGXXGL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/YFIO IOFAVNPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/RXGL YCJGBYGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4:control/GQNGXWBTGEVE</td>
</tr>
</tbody>
</table>

CT.EC2.PR.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.EC2.PR.3         | • NIST 800-53 Rev 5 AC-4  
                     | • NIST 800-53 Rev 5 AC-4(21)  
                     | • NIST 800-53 Rev 5 SC-7  
                     | • NIST 800-53 Rev 5 SC-7(11)  
                     | • NIST 800-53 Rev 5 SC-7(16)  
                     | • NIST 800-53 Rev 5 SC-7(21)  
                     | • NIST 800-53 Rev 5 SC-7(4)  | • Limit network access  
                     | • Enforce least privilege | • US East (N. Virginia)  
<pre><code>                 |                                | arn:aws:controltower:us-east-1:control/VVDNPMRRUWKZ |
</code></pre>
<p>|                    |           |                  | • US East (Ohio)                  |
|                    |           |                  | arn:aws:controltower:us-east-2:control/PZRWTBHPHWDVJ |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (Oregon) arn:aws:controltower:us-west-2::control/ZDDEIITTHMLA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Canada (Central) arn:aws:controltower:ca-central-1::control/XEHMLFNKUIK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/WUNOAUPAPJBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/LZMEYSKSQSYC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt) arn:aws:controltower</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(5)</td>
<td>PCI DSS version 3.2.1 1.2.1</td>
<td>PCI DSS version 3.2.1 1.3</td>
<td>PCI DSS version 3.2.1 1.3.1</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3</td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td>PCI DSS version 3.2.1 1.3.4</td>
<td>PCI DSS version 3.2.1 1.3.6</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/TKGSLZFXKVYW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/KEAWNIFQNQOD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/RLLXYAJVITSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/RASRTLVWUAOU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/QIMWICZWNCTJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/TLXGQRQZRNJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/DCJBSGYTZDVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/OOHNQEEZASSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/QAMRZHGXINM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:...</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:us-wes t-1::cont rol/LBDDZ FPUBGSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltower er:ap-eas t-1::cont rol/WOHIM VFOWTAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltower er:ap-south-east-3: :control/VCSBDJKNXJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltower er:ap-northeast-3: :control/VFVJCOMQJKBH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:c ontroltower er:eu-south-1::con</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/IXE0 ZHLDVITA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/YHTH JBQJJVFQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/TMEYCYVUCYDC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/BL IXQJMENCVK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/VC NQWOBRFBYK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Europe (Spain)</td>
<td></td>
<td></td>
<td>• arn:aws:controltower:eu-south-2:control/UWWTMOVSNRCU</td>
</tr>
<tr>
<td>Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>• arn:aws:controltower:ap-south-2:control/YCUAGICDVCVG</td>
</tr>
<tr>
<td>Middle East (UAE)</td>
<td></td>
<td></td>
<td>• arn:aws:controltower:me-central-1:control/GMIFXFKTECRV</td>
</tr>
<tr>
<td>Asia Pacific (Melbourne)</td>
<td></td>
<td></td>
<td>• arn:aws:controltower:ap-southeast-4:control/MRBMELVZIAZK</td>
</tr>
</tbody>
</table>
## CT.EC2.PR.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.EC2.PR.4</td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1:control/KFDQBXDMBXXV</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2:control/AECZRYXCRGT</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1:control/KPFAQFAQJAWK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/GEQABOPVFXCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/BWPBQRUMLZXK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/NUMPVXQDHGA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/NMIWXPPBIJIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>

- PCI DSS version 3.2.1 1.3.1
- PCI DSS version 3.2.1 1.3.2
- PCI DSS version 3.2.1 1.3.4
- PCI DSS version 3.2.1 1.3.6
- PCI DSS version 3.2.1 2.2
- PCI DSS version 3.2.1 2.2.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/BMSDU HXWMANZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/CZTD WPXRIDER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/VALJ QOMVXOMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/YTLKASXYASWH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/YTLKASXYASWH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MHXZH0BFJFUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/AJJMZXYCZHP0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/JZHLQYTWPNK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/PVHDKCIBKQU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/JYOPIABWXZKO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/ERCKYPEQKGQY</td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/BNIHBVSGLUNE</td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/GFIGHDGRWXGM</td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/NLXKLURXRNDL</td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/NLXKLURXRNDL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/NUDO LFIXZYEZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1:control/FD AHSWCZBUGN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2:control/VB HQSMHYYHTM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2:control/DRDS QMKCIRRRJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2:control/CT.EC2.PR.43396</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.EC2.PR.5        | • CIS AWS Benchmark 1.4 5.1
|                    | • NIST 800-53 Rev 5 AC-4(21)
|                    | • NIST 800-53 Rev 5 CA-9(1)
|                    | • NIST 800-53 Rev 5 CM-2 | • Limit network access | • US East (N. Virginia)
|                    | | | arn:aws:controltower:us-east-1:::control/DUQKO
|                    | | | RYIWJYQ
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/OEYVCMLVIAT</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-7</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/JZWYOZYBXKL</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/FTWNDUKURLTP</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/JSPEJFTBYZF</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(5)</td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ XTGIABCSEGKH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/SW BFLJHBRLPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/GNLTW RBKGZMV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/XMREZW ZEQWZR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northern-1::control/EJCX PRMBYXHH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/PEKEYNXLWHHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/LMVUECWMMAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/BWLZVKGFDRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/GCHXI LWGOPBI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-region::control/GCHXI LWGOPBI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower sa-eas t-1::control/LMJNA XCWKFLK</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-1::control/GONSQXTKTNDT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-east-1::control/NXUWXUAOGPAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:control/XNOKLOVHWBEZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-1::control/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CT.EC2.PR.5 3401
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/HPUAFLSJFNNQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/LSSLWVUIITJC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/ETMSBMVIDBMK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/WFKPVQJGGPQC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/OFNGRJURIHXXN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/RUGKAUTOIKRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/CFPKOBHYVXFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/GXAMOHYONSAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/JYHMYCYWFDIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>
### CT.EC2.PR.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.EC2.PR.6</td>
<td>NIST 800-53 Rev 5 AC-4(21)</td>
<td>Limit network access</td>
<td>arn:aws:controltower:us-east-1::control/DBGPJ0SFENFN</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>US East (N. Virginia)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/THHTKPOPPVGC</td>
</tr>
<tr>
<td>CT.EC2.PR.6</td>
<td>US East (Ohio)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/FAQMZVDILTRV</td>
</tr>
<tr>
<td></td>
<td>US West (Oregon)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/FSNQGGOUBAE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/DK UIAHCHYZTU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/NCDDQQZLDQZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/TJCZQYWQVXKW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/VG TXIUNUITGO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/FFOMGMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/XJFUTUKMXHKB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/UKGTSWXII0EJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/FWVYDJQAPZUF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/AXCDWYYFELJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
</tbody>
</table>

<p>| CT.EC2.PR.6 | 3407 |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/JGBJB NJYKXXYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/OEHVBKEUNBFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/RKIVCDUNAHHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/YPBPJCBGKRXG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/VFXW JQXLUIHI</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/DQKF UMTNBEXM</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/SG AIFIRXPCUH</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/TS ZFSULSYZVH</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/YCUDIIRUMWEV</td>
</tr>
</tbody>
</table>
### Control identifier

<table>
<thead>
<tr>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia Pacific (Hyderabad)</td>
<td>Encrypt data at rest</td>
<td>arn:aws:controltower:ap-south-2::control/PQKQBDQPIXCA</td>
</tr>
<tr>
<td>Middle East (UAE)</td>
<td>Encrypt data at rest</td>
<td>arn:aws:controltower:me-central-1::control/UKUCDQFEMDGT</td>
</tr>
<tr>
<td>Asia Pacific (Melbourne)</td>
<td>Encrypt data at rest</td>
<td>arn:aws:controltower:ap-southeast-4:control/ATKGMNOIYDJQ</td>
</tr>
</tbody>
</table>

### CT.EC2.PR.7

<table>
<thead>
<tr>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td>Encrypt data at rest</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/P97902897</td>
</tr>
</tbody>
</table>

### CT.EC2.PR.7

<table>
<thead>
<tr>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td>Encrypt data at rest</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/P97902897</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/KWFITNUSNTWO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/YJXXNEDHNQGK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/KM LZLRNMCKXY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-south-west-2:</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Singapore)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-south-east-1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-central-1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>:control/NI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-west-1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>:control/CZSRN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-west-2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>:control/JRGGEILMPZCB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZPFLDJXNZPIE</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QVTIUYOTIXLG</td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-1: control/YEAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EJGNLHKD</td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-south-1: control/HYWN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SPMVFTMM</td>
</tr>
<tr>
<td>Middle East</td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1: control/WQKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UTLCTJZO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/RYBRVORSWOMK</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/NQITDCBRPBRP</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/RVIOCFZIRSNU</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/HLKXSQDKBYSC</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>

**CT.EC2.PR.8**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1:control/BFYFBNGDUPMY</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/WTYIJXIQQBXW</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/HVUXMKMLIWUT</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>er:eu-central-1::control/ES EUINWAQPFU</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/KMDVQBZYAHYQ</td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/KMDVQBZYAHYQ</td>
</tr>
<tr>
<td>arn:aws:controltower:eu-north-1::control/FKBVRKHONPPP</td>
<td>Europe (Stockholm)</td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/FKBVRKHONPPP</td>
</tr>
<tr>
<td>arn:aws:controltower:ap-south-1::control/PTTXRHPKISJL</td>
<td>Asia Pacific (Mumbai)</td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/PTTXRHPKISJL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/DMNHGNNKZEBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/XNJAYSGVGVMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/ZZTQVTTCTXGIR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/LCMLSYPEDNH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:us-wes t-1::cont rol/YCYMJ NOFKIMD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltow er:ap-eas t-1::cont rol/XRRNG SVNWUOX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltow er:ap-sou theast-3: :control/ LCZICULVYVTQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltow er:ap-nor theast-3: :control/ AFMPKBWMAQVX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:c ontroltow er:eu-sou th-1::con</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>trol/DBCL</td>
<td></td>
<td></td>
<td>UROPTPQJ</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:ctroltower:af-south-1::control/KHRC</td>
<td></td>
<td>VSMBFTBG</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:ctroltower:me-south-1::control/CNOB</td>
<td></td>
<td>PUWJKIGF</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:ctroltower:il-central-1::control/LS</td>
<td></td>
<td>MWAQUJVBDF</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:ctroltower:eu-central-2::control/UC</td>
<td></td>
<td>CVNQSPNYVQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/GAOYRTVNQGHB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/LPNSPPZGRSQC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/BEKNCPBAOLVJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower:ap-southeast-4::control/VDOHFFWLBMLL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.EC2.PR.9        | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20)  
• NIST 800-53 Rev 5 SC-7(21)  
• NIST 800-53 Rev 5 SC-7(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-7(9)  
• Limit network access | • US East (N. Virginia)  
am:aws:controltower:us-east-1::control/CIYFCTAEGSAETL  
• US East (Ohio)  
am:aws:controltower:us-east-2::control/BOOVPDGTDMMV  
• US West (Oregon)  
am:aws:controltower:us-west-2::control/JAUVAPLUCXQF  
• Canada (Central)  
am:aws:controltower:ca-central-1::control/SLQHSMHNRF |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| PCI DSS version 3.2.1 1.2.1 |                  |                   | **Asia Pacific (Sydney)**
| PCI DSS version 3.2.1 1.3  |                  |                   | arn:aws:controltower:ap-southeast-2:control/NKVJXXQBVISF                                          |
| PCI DSS version 3.2.1 1.3.1 |                  |                   | **Asia Pacific (Singapore)**
| PCI DSS version 3.2.1 1.3.2 |                  |                   | arn:aws:controltower:ap-southeast-1:control/JHBKWBDQDYGY                                        |
| PCI DSS version 3.2.1 1.3.4 |                  |                   | **Europe (Frankfurt)**
| PCI DSS version 3.2.1 1.3.6 |                  |                   | arn:aws:controltower:eu-central-1:control/DVZJISBFGPXQ                                           |
| PCI DSS version 3.2.1 2.2.2 |                  |                   | **Europe (Ireland)**
| PCI DSS version 3.2.1 2.2.2 |                  |                   | arn:aws:controltower:eu-west-1:control/OTTRCZABNRLV                                            |
| PCI DSS version 3.2.1 2.2.2 |                  |                   | **Europe (London)**
| PCI DSS version 3.2.1 2.2.2 |                  |                   | arn:aws:controltower:
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-t-2:control/UKGRYFSQWORG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor-th-1:control/XOGWRUHGLMYT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-th-1:control/RWBQBCWGSMYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/PPEWYVJJUTDL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/PPEWYVJJUTDL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ WSPJASMSHIMH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/RIHKQ EVJLWKW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/JPSBS ZNEPWSC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/VSYRJ AIQJXRE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ALCTC NZFFPWY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:control/ZRLPKTZVMADM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3:control/EBCERJIZRPES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/LLULMHXRNSIP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/UBKVZJIXAHCA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltow...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/NIJPSHTU0AZ0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/KYQEYIPKZZGL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/MLYQXYDSMSNO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/FMACBWHCXOSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/NIJPSHTU0AZ0</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.EC2.PV.1        |           | Encrypt data at rest | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/QYNBJXVUADDJ |
<p>|                    | • NIST 800-53 Rev 5 CA-9(1) | | |
|                    | • NIST 800-53 Rev 5 CM-3(6) | | |
|                    | • NIST 800-53 Rev 5 SC-13 | | |
|                    | • NIST 800-53 Rev 5 SC-28 | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/DGXVMBTZVZON</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/VDGEODIDZXR</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/IWKYDPSHHVML</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/JXRGCRRRLVVDI</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ZLTP0VDCNCGM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/KJ/KTXJUCVRWI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/ESBAN/DFNAUPY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/YPAJJ/QFPQHZQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/MNUW/GXOWKURU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/NMUXQXQEMYOU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/CCDKONBVFMHX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/KNDLVQMVYRIW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/EAXMQNVTMKSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:sa-eas t-1:control/CJWWH CASSXWQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control/ TFTCJOVKJLMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1::control/DEUU0IHMPKAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/JEJIQALGAMRQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/KTTDGYIDMQBF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/UDWMDOPMGLTO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/OVJYKTCVHJFK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/QPCQUNRTQSAB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/GRWQKMQTHFTA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/ZYZPAEQXYYYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.EC2.PV.2</td>
<td></td>
<td>Encrypt data at rest</td>
<td>er:ap-south-4: :control/MEPYVZXUOIDE</td>
</tr>
</tbody>
</table>

**CT.EC2.PV.2**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.EC2.PV.2        | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SC-7(10)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 2.2  
• PCI DSS version 3.2.1 3.4  
• PCI DSS version 3.2.1 8.2.1 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/XFNEYNNZPTGL  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/JRCJLYEUWEAR  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/WKQRXQBHPKHM |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/SF HBTRLTPKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/DYMEHJARMKVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/FDIWDCPRVBUD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/YX RJTFNSRQBT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/EMUCX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PDDRQRS</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/XNMP1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QQUPZZQ</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/UBHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EAUUYQRY</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td>(Mumbai)</td>
<td></td>
<td></td>
<td>th-1::control/JDQD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BMIYNKPU</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td>(Seoul)</td>
<td></td>
<td></td>
<td>theast-2::control/KPBTWENB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XJWV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-1:control/QBBKUFGDMMSM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong>&lt;br&gt;arn:aws:controltower:eu-west-3:control/IQBWWLOWSJGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong>&lt;br&gt;arn:aws:controltower:sa-east-1:control/FPLODQLMJECQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong>&lt;br&gt;arn:aws:controltower:us-west-1:control/SJTQZMYHXUUW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-2:control/QBBKUFGDMMSM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-eas:control/RLFT0FECFBXL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/EJDXIYMHLMFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/LYRNEBMPTR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-1:control/TUCSBMYCOPFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:controltower:af-south-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/SAMY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CDSLHRSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/QMCW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KFJKDPTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/FE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JPHVPBVSLV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/YC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HZHVVXGHRV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/WHRR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RJKPJKBR</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---

#### Control identifier

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CT.EC2.PV.3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Control API identifiers, by Region

- **Asia Pacific (Hyderabad)**
  - `arn:aws:controltower:ap-southeast-2::control/VCZVABGYJPWF`

- **Middle East (UAE)**
  - `arn:aws:controltower:me-central-1::control/QUKENRWGEKDV`

- **Asia Pacific (Melbourne)**
  - `arn:aws:controltower:ap-southeast-4::control/HYKICGFAWYUK`

---

#### CT.EC2.PV.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CT.EC2.PV.3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **NIST 800-53 Rev 5 AC-21**
  - **Enforce least privilege**

- **US East (N. Virginia)**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/XGEAU/LNJZNVE</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>arn:aws:controltower:us-east-2::control/QFUMDYUVOKNH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/ZRARVNPRKEDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/QERNFETYILJR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZFGPINZEDNHA</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/YDWHLDLLQYKQ</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1: :control/XCBBLVWRUUZH</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1: :control/DXEDENHXARD</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2: :control/VZAGIPIIIWANTB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/LMOGZFXQTSFQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/PMUHWXSMSWPJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/IKBXDKHINKQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/DDDZBLDXBNLI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::cont rol/ZCCRT DVKBPMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::cont rol/KIWWT IKZGTJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::cont rol/CWFSO MNPVEWX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::cont rol/XOCKE FMNJOJL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DUZAZKIYTOJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/FCBHSKCCQWIW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/UAXGCRLSTKBX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/VHAIKMBJAYNU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/LHIONJLMUIVY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/ZOXWWDKCNRU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/XGUQGBDNOFSP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:controltower:eu-south-2::control/HNBMELXEFGD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td>arn:aws:controltower:ap-south-2::control/NEQLANSJHSD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td>arn:aws:controltower:me-central</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.EC2.PV.4        | • NIST 800-53 Rev 5 AC-3  
                     • NIST 800-53 Rev 5 AC-6  
                     • PCI DSS version 3.2.1 2.2  
                     • PCI DSS version 3.2.1 2.2.2  
                     • Enforce least privilege | • US East (N. Virginia)  
                     arn:aws:controltower:us-east-1:control/GHSJTKXFHRH  
                     • US East (Ohio)  
                     arn:aws:controltower:us-east-2:control/YTABBDOBIHED |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/EBWUEMXUGAPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/XTCFTTKIVGTN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southwest-2:control/KPDJIJGHKWZJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/JMVYSFPCMP0P</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/ZB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0MDKMJYNRN</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/SNXTYMBHGDFS</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/QVTYZILQTNMC</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1:control/IFWQXGYWXHPG</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/JODKGYKBMUCI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Asia Pacific (Seoul)**  
ar n:aws:controltow
   er:ap-northeast-2:
   :control/LZLMUH0WCXXM |
|                    |           |                  | • **Asia Pacific  
(Tokyo)**  
arn:aws:controltow
   er:ap-northeast-1:
   :control/DKWRBPJYSHBT |
|                    |           |                  | • **Europe (Paris)**  
ar n:aws:controltow
   er:eu-west-3:
   :control/MXJHN
   TCSCIJS |
|                    |           |                  | • **South America  
(São Paulo)**  
ar n:aws:controltow
   er:sa-east-1:
   :control/QDTMW
   FLIWNVW |
|                    |           |                  | • **US West (N.  
California)**  
ar n:aws:controltow
   er:us-west-2:
   :control/QDTMW
   FLIWNVW |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

- **Asia Pacific (Hong Kong)** `arn:aws:controltower:ap-east-1::control/TCNVZ:HJEWTIH`
- **Asia Pacific (Jakarta)** `arn:aws:controltower:ap-southeast-3::control/ODNPA:KUTMSCP`
- **Asia Pacific (Osaka)** `arn:aws:controltower:ap-northeast-3::control/LETJITMENKEQ`
- **Europe (Milan)** `arn:aws:controltower:eu-southeast-1::control/CT.EC2.PV.4:3454`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/YNCM WZYJQYVG</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/SSTB OJXRKDQW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/PUTU JBSEMFAP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/PQ EPOZEKFKXXK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/GA CNHGSANTCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/KWVFIBRUVCNW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/TADWJEUEHALG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/OTYTELEJSOJRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/TDHBNSHLEYAW</td>
</tr>
</tbody>
</table>
## CT.EC2.PV.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.EC2.PV.5</td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td>• Protect configurations</td>
<td>arn:aws:controltower:us-east-t-1:control/NNHGI</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td>DDKHHWE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-t-2:control/BEIPH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XRNJBTF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-t-2:control/XRKLQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WOPJVYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/JU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KQTEJGAVSA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/BXVVWHFTYOAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/CKUTHXNXRMCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/FLVQLJKGJQCU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/CTRL/SKYWKZNFEZBH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-wes-t-2:control/UVLTS HLSBWJZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-th-1:control/LPFL LHDHCXRW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/KXLR VKUCFQSJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/QFGLUGBHYXZK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/QFGLUGBHYXZK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UWULNDELFZCYCJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-westeu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/rol/NFLPMHINYBWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>South America</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-easa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/rol/VXQUMHXZOVIP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wesus-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/rol/MSDFVWAYUUFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-easap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/rol/UYBYUHTDNANIA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Asia Pacific (Jakarta)</td>
<td>Asia Pacific (Jakarta)</td>
<td>Asia Pacific (Jakarta)</td>
<td>Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td>Asia Pacific (Osaka)</td>
<td>Asia Pacific (Osaka)</td>
<td>Asia Pacific (Osaka)</td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td>Europe (Milan)</td>
<td>Europe (Milan)</td>
<td>Europe (Milan)</td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td>Africa (Cape Town)</td>
<td>Africa (Cape Town)</td>
<td>Africa (Cape Town)</td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td>Middle East (Bahrain)</td>
<td>Middle East (Bahrain)</td>
<td>Middle East (Bahrain)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower me-south-1::control/WIRC OWSJKYEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/BE RLGJJSNKNM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Zurich) arn:aws:controltower:eu-central-2::control/JD LBRLVBZOYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Spain) arn:aws:controltower:eu-south-2::control/SQPM UEDBMIYH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/UE</td>
</tr>
</tbody>
</table>

**Control objectives**

- **Control objective**: Fine-grained visibility across all AWS regions
- **Framework**: AWS Control Tower
- **Control identifier**: CT.EC2.PV.5

**Control identifiers, by Region**

- **Israel (Tel Aviv)**
  - arn:aws:controltower:il-central-1::control/BE RLGJJSNKNM
- **Europe (Zurich)**
  - arn:aws:controltower:eu-central-2::control/JD LBRLVBZOYN
- **Europe (Spain)**
  - arn:aws:controltower:eu-south-2::control/SQPM UEDBMIYH
- **Asia Pacific (Hyderabad)**
  - arn:aws:controltower:ap-south-2::control/UE
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.EC2.PV.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>NIST 800-53 Rev 5 CM-2</strong></td>
<td>Enforce least privilege, Protect configurations</td>
<td><strong>US East (N. Virginia)</strong>&lt;br&gt;arn:aws:controltower:us-east-1::control/ROQSXWNZWNSL</td>
</tr>
<tr>
<td></td>
<td><strong>NIST 800-53 Rev 5 CM-2(2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>PCI DSS version 3.2.1 2.2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:aws:controltower:us-east-2:**control/BXTIHYDLSFUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:aws:controltower:us-west-2:**control/HQXFMJNEBMH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:aws:controltower:ca-central-1:**control/HPAJKCLSWUKI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**arn:aws:controltower:ap-southeast-2:**control/GUMQHPYKEKBX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/OGSGHVHZCIMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/MIQDLAGROXRA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/SXASPFXVYCVQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/XBRSUVRBMRYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northern-1::control/KDBTSQXEVFKN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/GTSX ROEFLIQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/WEOIFHCTULKV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/WEAEZPVLACWY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/FSUBQ PEADBIK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-south-1:control/GTSX ROEFLIQQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-eas:t-1:control:JPBFZ:NFDOLMK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east:t-1:control:CVIAS:RNENCBK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-south:thest-3:control:ZXTGGJQZHLQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-nor:</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3: control/UVSJZUHFSUKD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/DTSIZQDYZVPQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/UAXLTHFETOAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/FANHZDBWKZLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/FOPVKXPQQJNL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/YM JBBGSTFCVN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/FXLWNQRVHTMZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/ACJBMMGJKLKG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1:control/NNLTLRTCRFJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:as-pacific-2:control/ACJBMMGJKLKG</td>
</tr>
</tbody>
</table>
### CT.ECR.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ECR.PR.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Framework**: NIST 800-53 Rev 5
  - CA-9(1)
  - CM-2
  - CM-2(2)
- **Framework**: PCI DSS version 3.2.1 3.1
- **Control objective**
  - Manage vulnerabilities
  - Protect configurations
- **Control API identifiers, by Region**
  - **US East (N. Virginia)**
    - `arn:aws:controltower:us-east-1::control/QXNBGIPKJBEQ`
  - **US East (Ohio)**
    - `arn:aws:controltower:us-east-2::control/WUAWJIWPVBIG`
  - **US West (Oregon)**
    - `arn:aws:controltower:us-west-2::control/IRQTOSLASFTT`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ca-central-1::control/IM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GIIRQPZYLI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-2::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QBVJWKFJGIXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UKSAVCPEYYXG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu-central-1::control/BL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RQAAKNFKRK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/JHXDE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SJFVFUH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control:eu-wes         t-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/GEXAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JDYDCYJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control:eu-nor-th-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/LAUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CZEXCNRP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control:ap-sou-th-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/MYOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RLIOXVFN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control:ap-nor-theast-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QMYDBMPB00HM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/IRDDNOLWNMNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/CXODZHXMCVEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/UERWGVPURZSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/THFIZWCVZGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/IRDDNOLWNMNN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-easteast-1:control/EHPCW FMOJUEW</td>
</tr>
<tr>
<td></td>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltowerer:ap-souveast-3:control/YBFBQ000UVSWP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltowerer:ap-norseast-3:control/QZAKDBVRAQPU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe (Milan)</td>
<td>arn:aws:controltowerer:eu-southeast-1:control/KIPJ0MKOBOMA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Africa (Cape Town)</td>
<td>arn:aws:controltowerer:af-southeast-1:control/</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/IOIU ROJXAOTB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/DIPX XRQWFAQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/DK ZSCADUUVKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/GO VJWUEVROCT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/SSGG VLEYUFGH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.ECR.PR.2        | NIST 800-53 Rev 5 RA-5 | Manage vulnerabilities | **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/CT.ECR.PR.2 |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 11.2.3</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/MOWSM MNGTNEJ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 6.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/QKPSF RNOERPV</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/WODEI LPXPBWH</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/NT NTONZEGMLUH</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QZCGKPXCBXGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/CTBP:MNOJRRRG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/WBSB:AJCHOSLR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/ELSOUNERQMFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/BBNLHIKHSVDF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3:control/ISAFGVJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:t-1:control/OUGZG:HPIBMEQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:t-1:control/SXENU:GPYUKAD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas:t-1:control/PIRUM:JAENJDF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou:theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CT.ECR.PR.2 3480</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>:control/ NQTDLNZG0GBG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/ DSZQHOFPLVM</td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1: :control/IOCR0VUHSSPK</td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1: :control/ZCFFKHBNTVBL</td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1: :control/MDCLENDMMJGN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/OC SHRWCPBIGG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/BW SAXHIZEZDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/EAUQ CAJHCRLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/JUTY WVTNRCMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>CT.ECR.PR.3</td>
<td>- NIST 800-53 Rev 5 CA-9(1)</td>
<td>- Protect configurations</td>
<td>- US East (N. Virginia) arn:aws:controltower:us-east-1::control/RKDZMSUYQTHO</td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 CM-8(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- PCI DSS version 3.2.1 2.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CT.ECR.PR.3**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/FQOEMCXBLGKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/FKSEYKPJSJDJT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/NEMIRSQYEPIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/XZFSMLDDYHOK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/CZ VDXRYERZBE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/EVJNATWHXBEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/ZEZBSLWHNLTZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/DQXOSGOLEFTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/QAMXLOUSWQVO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/ECNPMKZLJXF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/KIXAFVFYWNOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/FNBIPNPRVQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/FVDLDMSGHME</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ecr:us-west-3::control/CT.ECR.PR.3486</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Asia Pacific (Hong Kong)** arn:aws:controltower:ap-east-1::control/LQFQWXGRRJXG
- **Asia Pacific (Jakarta)** arn:aws:controltower:ap-southeast-3::control/QRCFKIBEUPDE
- **Asia Pacific (Osaka)** arn:aws:controltower:ap-northeast-3::control/UQFGHAIBAI
- **Europe (Milan)** arn:aws:controltower:eu-south-1::control/
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Control/KIFL KMDMDVPH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltOWER:af-south-1::control/FXWI RNEDJUVP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltOWER:me-south-1::control/GRIJ KPPVEHJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltOWER:il-central-1::control/FH VQFFFGCFWK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltOWER:eu-central-2::control/YA FJVSLTGBPG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:controltower:eu-south-2::control/UHSKPCFWWNHJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td>arn:aws:controltower:ap-south-2::control/EEHWJWMDSOSE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Hyderabad)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East</td>
<td>arn:aws:controltower:me-central-1::control/NPSTOIEYDVPV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(UAE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td>arn:aws:controltower:ap-southeast-4::control/QGQOOLGEUFR0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Melbourne)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## CT.ECS.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ECS.PR.1        | • NIST 800-53 Rev 5 AC-2(1) | • Manage vulnerabilities | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/MHZEN
EKNVRDM |
|                    | • NIST 800-53 Rev 5 AC-3 |  | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/MYSVO
ZBSJPIT |
|                    | • NIST 800-53 Rev 5 AC-3(15) |  | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/PRTAZ
ZJJIMQM |
|                    | • NIST 800-53 Rev 5 AC-3(7) |  | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/GB
PYRLB0QCKZ |
<p>|                    | • NIST 800-53 Rev 5 AC-5 |  |  |
|                    | • NIST 800-53 Rev 5 AC-6 |  |  |
|                    | • NIST 800-53 Rev 5 CA-9(1) |  |  |
|                    | • NIST 800-53 Rev 5 CM-2 |  |  |
|                    | • NIST 800-53 Rev 5 SI-2 |  |  |
|                    | • NIST 800-53 Rev 5 SI-2(2) |  |  |
|                    | • NIST 800-53 Rev 5 SI-2(4) |  |  |
|                    | • NIST 800-53 Rev 5 SI-2(5) |  |  |
|                    | • PCI DSS version 3.2.1 1.3.7 |  |  |
|                    | • PCI DSS version 3.2.1 6.2 |  |  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/AELENOQZMXVF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/ARPWJUYLVOEF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/MJYZZTPTBHOK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/FJIWSMFTNUJP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::controler:PYRWLZWVZEGC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/JQRIHOGJX0XPYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/KPQKRVCEFHKYM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control:AVQAVLSBSYMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control:AVQAVLSBSYMU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/OXTKLLLGWVCQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/TFUJIAEBMCWO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-1::control/LBRTCEKHUMKQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/SYYXANDPGYMO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas-1::control/MZVXPGLPGWVM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/0RAWXBHCEJWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/RXWKVANCUWSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/JRIS0KFFILDM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/NDMGEEZJEXYO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:bahrain::control</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/EBKW KZSZPRTF</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/FY QMDAKQISNQ</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:europe-central-2:control/MU CKKRINLINT</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:europe-south-2:control/GM0H YFMCJQWC</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:asia-pacific-south-2:control/</td>
</tr>
</tbody>
</table>
## CT.ECS.PR.10

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ECS.PR.10        |           | Protect configurations               | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/SIJXAEJNCZRU |
<p>|                    | NIST 800-53 Rev 5 CA-9(1) | • Protect configurations |                               |
|                    | NIST 800-53 Rev 5 CM-2 | • Enforce least privilege |                               |
|                    | PCI DSS version 3.2.1 1.3.7 |                            |                               |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/KRBXESUGGRWX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/TZNJBPCHXKPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/QFQHĐEJLUVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/BARUWERYCVPZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/BARUWERYCVPZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sout</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JYWFVNVOCRVR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/NI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QDIWOHUBIN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QTCQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TCIQJQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BCRKC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZGDGDIL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-north-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XWUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VDSFNTVZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/TOAJYCRKCFXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/OHEAQZBMADFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/SFTBSYXOGMZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/ZBUMWEYBEHMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:south-america-1::control/QPZBMADFE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/XJRVRGJIFJMX</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td>Arn:aws:control</td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/NNYUGCATXOCK</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>Arn:aws:control</td>
</tr>
<tr>
<td>(Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/BDWFWMGKGTLC</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>Arn:aws:control</td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AJNKXRBUKMIW</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>Arn:aws:control</td>
</tr>
<tr>
<td>(Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:control/NTURYGMJMidN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1:control/NUGUPHOMSEQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1:control/LUPHAYKCDNOT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1:control/LVCENSFTEGNU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1:control/NCWTYNSFNOA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong></td>
</tr>
</tbody>
</table>
## CT.ECS.PR.11

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ECS.PR.11</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Enforce least privilege</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (N. Virginia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-east-1::control/KQEMAQVKCPAV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-east-2::control/SFOHTFV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-west-2::control/NHLPMKT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1::control/EI NHSETMUTZS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2::control/EUFKWMGWEVVF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1::control/TXMZRKTZUCXZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/ZG ZXTLVZQFH0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1:control/UVDVA UNQEEFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2:control/HFPEC CDKNWON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/LBWO HEISYBLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/HZHM SMNSGECV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/SEFHYQQECPNZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/GQVKXJHRWRZY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/HNGJINPEUOQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/OMEPVOAXBHGF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/AIYVMWDWTL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/GKXJHRWRZY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/EFCZN PV0MKNP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/ WANJBLRHTDXZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/ QHUEUPKSMVAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-southeast-1:control/ OKDU SHUVONOT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-southeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/VHGS WXFFXGEA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/HTCF OMOTTSOB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/DI SVJHLQHY00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/TX ZQCWTXJKSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/YKED JRVRZKEH</td>
</tr>
</tbody>
</table>
### Control identifier

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ECS.PR.12        | • NIST 800-53 Rev 5 CA-9(1) | • Use strong authentication | • US East (N. Virginia)  
  arn:aws:controltower:us-east-1::control/MPHEJEWQEZG |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1:control/AMSZNQJFMYFK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2:control/PDBTCIAMJJFJ</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/DFEQFDPQBGA</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/UICVAWRLEUIA</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
</tr>
</tbody>
</table>

CT.ECS.PR.12
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QANDDOVBOKJX</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltowell:ap-southeast-1: :control/EDPKYCGGTMWS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltowell:eu-central-1: :control/JWXCYUIPKHHA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltowell:eu-west-1: :control/EMXLYJRHKCXQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltowell:eu-west-2: :control/ZIQTSJXBFAEB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/XBKA LBVBFBMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1::control/PHUS QUZZKDFW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/JTQTBQTJXRTY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/MGGRRKOTQYGT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/FRGKE KWRNAFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::control/ANOIH 0DOAZVF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::control/YDLIO LKELUTQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::control/XAKUN ACPPCIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FBNIUCYMSFGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CUTNMQPJIESP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/LGDXTFQGGNDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/ICYGGNTPXDRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/CDBKAMWXZRHR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/JM ISFEYTYRYK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/RC KSOEOJJJXQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/HCQD NSIUYVIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/DIMY MTIRUMAR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---
CT.ECS.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ECS.PR.2 | NIST 800-53 Rev 5 AU-6(3) | Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/BYFWXRYSYXBV |
| | NIST 800-53 Rev 5 AU-6(4) | | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/KERIBBICUEGG |
<p>| | NIST 800-53 Rev 5 CA-7 | | |
| | NIST 800-53 Rev 5 SI-2 | | |
| | PCI DSS version 3.2.1 10.1 | | |
| | PCI DSS version 3.2.1 10.2.1 | | |
| | PCI DSS version 3.2.1 10.2.2 | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:us-west-2::control/LBPTWMIHFKYF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:ca-central-1::control/SHIXZVMGGYMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:ap-southeast-2::control/WXYORIQYPPG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:ap-southeast-1::control/FDKSTHVUWWYA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower</td>
</tr>
</tbody>
</table>

- PCI DSS version 3.2.1 10.2.3
- PCI DSS version 3.2.1 10.2.4
- PCI DSS version 3.2.1 10.2.5
- PCI DSS version 3.2.1 10.2.7
- PCI DSS version 3.2.1 10.3.1
- PCI DSS version 3.2.1 10.3.2
- PCI DSS version 3.2.1 10.3.3
- PCI DSS version 3.2.1 10.3.4
- PCI DSS version 3.2.1 10.3.5
- PCI DSS version 3.2.1 10.3.6
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/WRZGKFSXXORW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:control/tower:eu-west-1::control/HFXLYQMGFRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:control/tower:eu-west-2::control/FOHVPKZVRHPF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:control/tower:eu-north-1::control/ZUDLVFPNDOIO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:control/tower:ap-south-1::control/DOAWPTYPTCXV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/LQMMPHYSFREQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/IUNRXFCQGPRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/OIUPCXBXNKYYM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/ZEHKMMLYIFGJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-west-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/SGZTS.NJFPGDG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-east-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/LXJSS.COAPFZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-3:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/WMYOLPNABPXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-3:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/USNBRAEIRTOF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/CT.ECS.PR.2.3520</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/DQFK EHKZLQDW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/YHHQMSOSLWSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/GBGHLSBTCWQS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/KKQCKDMOLMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/MNKWNXXTMDNM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/UFMS TKPVLYKF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/NUVQP YPCRWRU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1:control/FUTCMEOXCYM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4:control/OHUTRXWKJGCQ</td>
</tr>
</tbody>
</table>
## CT.ECS.PR.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ECS.PR.3        | • NIST 800-53 Rev 5 AC-2(1)  
                     • NIST 800-53 Rev 5 AC-3  
                     • NIST 800-53 Rev 5 AC-3(15)  
                     • NIST 800-53 Rev 5 AC-3(7)  
                     • NIST 800-53 Rev 5 AC-5  
                     • NIST 800-53 Rev 5 AC-6  
                     • PCI DSS version 3.2.1 7.1.1 | • Enforce least privilege  
                     • Manage vulnerabilities | • US East (N. Virginia)  
arn:aws:controltower:us-east-1:control/GFAVSWYHDNTND  
• US East (Ohio)  
arn:aws:controltower:us-east-2:control/QHAHUINVTWCK  
• US West (Oregon)  
arn:aws:controltower:us-west-2:control/FCDPZLCZQNUW  
• Canada (Central)  
arn:aws:controltower:ca-central-1:control/WHBVGSRPVIND |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/LHNFHNNMMIXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/UWMACLLLDWQA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/ICGGLMZIPMAT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/LQBIGKSRNIIXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-west-2::control/AROELFZBBOTF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BKVHTGKQKYEU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/EFDXHWMRVIRK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/RQWURAFSPNKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/QIGZSAMESKYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/NOIWGZCKJJDWV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/HIVKSROFOHMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3::control/HIAVTIWMMCDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/REYGPHBQWSGI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/GGZACHVRLUUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:asia-pacific-east-3::control/HIVKSROFOHMI</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower me-south th-1::control/PXEG BZYRWQRK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/SY GIWESDSEZZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/AA WOAIXJMXLNY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/PLGS GRFMDMHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/PLGS GRFMDMHH</td>
</tr>
</tbody>
</table>
## Control identifier

### Framework

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ECS.PR.4</td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/YAGJMJCIQDQ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| • NIST 800-53 Rev 5 SC-7(21) | | | • US East (Ohio)
ar:aws:controltower:us-east-2::control/MGBLOFCAADDWF |
| • NIST 800-53 Rev 5 SC-7(3) | | | • US West (Oregon)
ar:aws:controltower:us-west-2::control/NDQWP BJPXIKJO |
| • NIST 800-53 Rev 5 SC-7(5) | | | • Canada (Central)
ar:aws:controltower:ca-central-1::control/IA RHPIWNYLNY |
| • NIST 800-53 Rev 5 SC-7(9) | | | • Asia Pacific (Sydney)
ar:aws:controltower:ap-southeast-2::control/NNXSVDQA0K |
| • PCI DSS version 3.2.1 1.2.1 | | | • Asia Pacific (Singapore)
ar:aws:controltower:ap-southeast-2::control/NNXSVDQA0K |
<p>| • PCI DSS version 3.2.1 1.3 | | | |
| • PCI DSS version 3.2.1 1.3.1 | | | |
| • PCI DSS version 3.2.1 1.3.2 | | | |
| • PCI DSS version 3.2.1 1.3.4 | | | |
| • PCI DSS version 3.2.1 1.3.6 | | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ DQLFFJBHMJJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:control: aws:control: eu-central-1::control/NA MUQZRYRJQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:control: aws:control: eu-west-1::control/KOMKX LGQHVZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:control: aws:control: eu-west-2::control/OJZFA UBEPXZP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:control: aws:control: eu-north-1::control/ETHW POFJNBHN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/ZAWNBERLIWEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/IBTZPTTDYAKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/GODEJVZHXFUC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower:eu-west-3::control/NMYHLMHTRRSMF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong> arn:aws:controltower:ap-south-1::control/ZAWNBERLIWEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1:control/DNLNJ TIGMMFI</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **US West (N. California)**
<p>|                    |           |                  | arn:aws:controltow er:us-wes t-1:control/FMYFL IBUAOQB |
|                    |           |                  | • <strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltow er:ap-eas t-1:control/RHQTK XEGVONX |
|                    |           |                  | • <strong>Asia Pacific (Jakarta)</strong> arn:aws:controltow er:ap-southeast-3:control/ RVWNBZEIAMPE |
|                    |           |                  | • <strong>Asia Pacific (Osaka)</strong> arn:aws:controltow er:ap-nor |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control/VAAGGLZEFDKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/NZWWZBPGYEQI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/DDEZLVOWZIVH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/OZKRBTWBBIQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/HZKZHFDATHMM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/CW HSHXCPXHAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/ZVTR PSJBSKGG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/DZMB ACOEVMXS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central-1::control/XW NOQNOFKXOVF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
</tbody>
</table>

CT.ECS.PR.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ECS.PR.5         | • NIST 800-53 Rev 5 AC-4(26)  
|                    | • NIST 800-53 Rev 5 AU-10     
|                    | • NIST 800-53 Rev 5 AU-12     
|                    | • NIST 800-53 Rev 5 AU-2      
|                    | • NIST 800-53 Rev 5 AU-3      
|                    | • NIST 800-53 Rev 5 AU-6(3)   
|                    | • NIST 800-53 Rev 5 AU-6(4)   
|                    | • NIST 800-53 Rev 5 CA-7      
|                    | • NIST 800-53 Rev 5 SC-7(9)   
<p>|                    | • NIST 800-53 Rev 5 SI-7(8)   | • Establish logging and monitoring |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/MBYGVRJYJVDVQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/OOZUIEFUETGL</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/YAHLRRLBBBDI</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/YQOFKMKHUBER</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/DEAHTYWKLWPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2::control/DSNUNMWDLPJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/YAUDJTJJYGTZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/AEKSNGNWNLYUJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/JLPDEEKGFTNS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/NWTUHESHFSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/XCQQPQZSYJQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/NHSQHFUTGCNR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/SEKFMJRLAUDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/NWTUHESHFSA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrol tower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/AFXFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KNNJTCD</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrol tower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NZXRQVWELREZ</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrol tower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VUOFRSMBBPCP</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrol tower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MSHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DWEPRDVI</td>
</tr>
<tr>
<td>• Africa (Cape</td>
<td></td>
<td></td>
<td>Town) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrol tower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/JLJK XDPIIQQT</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/PTDT TDWPYNIQ</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/UA KPTHISQKRE</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/GV WABBLEXZTU</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/DFBR AWTBZSIF</td>
</tr>
</tbody>
</table>
### Control identifier  | Framework  | Control objective                      | Control API identifiers, by Region
---|---|---|---

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ECS.PR.6</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| • NIST 800-53 Rev 5 AC-3 | | | ontroltower:us-east-1::control/JTWWG
| • NIST 800-53 Rev 5 AC-3(15) | | | controltower:us-east-1::control/RQVPNPA
| • NIST 800-53 Rev 5 AC-3(7) | | | controltower:us-east-1::control/WXRVL
| • NIST 800-53 Rev 5 AC-5 | | | controltower:us-east-1::control/DXHYTSD
| • NIST 800-53 Rev 5 AC-6 | | | controltower:us-east-1::control/BZKHNQO
| • PCI DSS version 3.2.1 7.1.1 | | | controltower:us-east-1::control/IF
| • PCI DSS version 3.2.1 7.2.1 | | | controltower:us-east-1::control/ZZ0ZKBHYXF
| • PCI DSS version 3.2.1 7.2.2 | | | controltower:us-east-1::control/IF
| • US East (Ohio) | | | controltower:us-east-2::control/IF
| • US West (Oregon) | | | controltower:us-west-2::control/IF
| • Canada (Central) | | | controltower:ca-central-1::control/IF
| • Asia Pacific (Sydney) | | | controltower:ap-southeast-2::control/IF
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ALOSYSCDXMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/PEWMZWHAXNB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/XPAYGNHKPRQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/KVIHSHXVHFCX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/OPDRCLSYBLYK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/PWQAQGQMGWXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/DNUF PJWDBSLZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/AMHLLJICMVIG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/ZXDGEZSOPFCD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control SXYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SZKJTY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control rol/KFTLB REXIINM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control rol/APHTP EHOKCKF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control rol/CBOMK CLTZZHUA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KWSNCTWDICYIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DZPUWGAVVWHXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-1:control/ONBILKCURYST</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-south-1:control/HORN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BWCMJORW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1:control/GBCM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AOMNPVEZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong>&lt;br&gt;arn:aws:controltower:il-central-1::control/JT YEXQVOZSBN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/VK EZRNWMAPCG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/JIZJ UWRJAZLR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/RYOJ TKATLZWB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### AWS Control Tower

#### Control identifier | Framework | Control objective | Control API identifiers, by Region
---|---|---|---

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ECS.PR.7          | NIST 800-53 Rev 5 CA-9(1) | Improve availability | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/KXUMGTKEKZR  
US East (Ohio)  
arn:aws:controltower:us-east-2::control/IPDXJYKWODXA  
Asia Pacific (Melbourne)  
arn:aws:controltower:ap-southeast-4::control/UWJWVKORWUOI |

---

CT.ECS.PR.7
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/RYUYZPTAVRFN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/OWWEUIDVOUHP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/NEZKAVUMHCLM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/REWMTIUNPNGU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/CS EKQRBEEBHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/SECTL WSVMKFB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/FSUOY QJVISCW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/SXCP WIDYPOPO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/HRFR ZYONQAJF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/ZHITNVQDDRNT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/BSSDTCJTXIDJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/IMYNHRNBGGDP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/RPTFPYNJVRRRL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-wes:t-1:control/UKIVIVVHEFYM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-eas:t-1:control/DXBQECPIABVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:control/SZBHNXBFPDGII</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3:control/QMHMUOSCGEHN</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/CT.ECS.PR.73553</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/RSBG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FQKAVQFR</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/SERK</td>
<td></td>
<td>YJMNJNYS</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/JUHB</td>
<td></td>
<td>TBYAVHAF</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/PV</td>
<td></td>
<td>HIQKXRYMXE</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/DV</td>
<td></td>
<td>TKBJDCSCIJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/ROOA BJEGQOB T</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/FTVH CALGECKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/IL MNUQLOTKQF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/PCIZQSTGKQ0Y</td>
</tr>
</tbody>
</table>
### CT.ECS.PR.8

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ECS.PR.8         | • NIST 800-53 Rev 5 AC-2(1) | • Manage vulnerabilities | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/KKVIYLEZFGKT |
|                    | • NIST 800-53 Rev 5 AC-3       |                               | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/RTPJRDPPZWEHJ |
|                    | • NIST 800-53 Rev 5 AC-3(15)   |                               | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/GIGMOPTTKBKT |
|                    | • NIST 800-53 Rev 5 AC-3(7)    |                               | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/OPJANTDNJXXU |
<p>|                    | • NIST 800-53 Rev 5 AC-5       |                               |                     |
|                    | • NIST 800-53 Rev 5 AC-6       |                               |                     |
|                    | • PCI DSS version 3.2.1 7.1.1  |                               |                     |
|                    | • PCI DSS version 3.2.1 7.1.2  |                               |                     |
|                    | • PCI DSS version 3.2.1 7.2.1  |                               |                     |
|                    | • PCI DSS version 3.2.1 7.2.2  |                               |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/VAHLXF00ZHSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/JEGHYZBSMSQE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/HEKFVPAUPMOV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/DSHJHPGBENNQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2: control/ LVFAC ZHPEDFZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower: eu:eu-nor th-1: control/ NLWR WUMEMNQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower: ap-south th-1: control/ IGXZ MOGOCQBH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower: ap-northeast-2: control/ UCEBJDGYKZIW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower: ap-northeast-1: control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifier(s), by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KUHUYIYOXNXL</td>
</tr>
</tbody>
</table>

- **Europe (Paris)**
  - arn:aws:controltower:eu-west-3::control/YPNPA BPWVPN

- **South America (São Paulo)**
  - arn:aws:controltower:sa-east-1::control/GCCOH HGINCEN

- **US West (N. California)**
  - arn:aws:controltower:us-west-1::control/VYWWU RVYUKKH

- **Asia Pacific (Hong Kong)**
  - arn:aws:controltower:ap-east-1::control/FRJMQ PFLSYSC
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>• arn:aws:controltower:ap-southeast-3:control/CPUSDPMIROHK</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Osaka)</td>
<td></td>
<td></td>
<td>• arn:aws:controltower:ap-northeast-3:control/NBTIIMCBBVP</td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arm:aws:controltower:eu-south-1:control/VQYCXJZPSIXD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arm:aws:controltower:af-south-1:control/SMFMCNFPQLZO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle East</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Bahrain)</td>
<td></td>
<td></td>
<td>• arn:aws:controltower:af-south-1:control/SMFMCNFPQLZO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/EBTY HGUHIJME</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1:control/TW MXRHDUVWOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2:control/XR KUTGZUWRQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2:control/FXEHEQAFPUSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.ECS.PR.9</td>
<td></td>
<td></td>
<td>Middle East (UAE) arn:aws:controltower:me-central-1::control/NIRY ANSAZIQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/SUKOWFYLVDDJT</td>
</tr>
</tbody>
</table>

**CT.ECS.PR.9**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ECS.PR.9</td>
<td>NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/ULWRY YUOYETK</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td>• Enforce least privilege</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **US East (Ohio)**
  - arn:aws:controltower:us-east-2::control/EFALHMKKXWXM

- **US West (Oregon)**
  - arn:aws:controltower:us-west-2::control/OJBRRKEONYNH

- **Canada (Central)**
  - arn:aws:controltower:ca-central-1::control/QQBFGIYIOMAO

- **Asia Pacific (Sydney)**
  - arn:aws:controltower:ap-southeast-2::control/YXMLNPXSEMFTZ

- **Asia Pacific (Singapore)**
  - arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/BZRONDGFUHD</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/ZODTFHONMPAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/UJIYCPZPSNDW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/GSVMYFTSGKWB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/JHDQJBIOETHT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltow er:ap-south-1::control/BVAR TMYMOPNP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltow er:ap-northeast-2::control/FKQYIWLKBLWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltow er:ap-northeast-1::control/UFCFASRBMGGT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltow er:eu-west-3::control/JDNTXDQRRAGR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:sa-eas t-1::control/TIRWN JLSDRJS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::control/BNESJ VBSJKKM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::control/CIRJD RQJIHRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/NOCAIXXNKAIJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3: :control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KWPVWYEUQKJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:south-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VMOPJVSAEBDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>af:south-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KFPXJHOPUQJK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>me:south-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WJSSIZCTYILH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>il:central-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VCEDBHTMDGIK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/PQ YTENJTRMQG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/CTEI MJAETBLH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/ETUV KDVBNXWK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/XA JBOXSRLCZS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.EKS.PR.1         | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20) | • Limit network access |  
|                    |           |                  | • US East (N. Virginia)  
ar.n:aws:ctntroltowrer:us-eas
t-1::control/WBFBYCXMQAM  
• US East (Ohio)  
ar.n:aws:ctntroltowrer:us-eas
t-2::control/DYHEOMICUQFIX  
• US West (Oregon)  
ar.n:aws:ctntroltowrer:us-wes
t-2::control/GSLRTSNFSMMH |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/MWFFQFZKMX</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/NJSROBYVJRT0</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/SBDBCVUFDDXN</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/NOIJYYRQMQE</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower</td>
</tr>
</tbody>
</table>

CT.EKS.PR.1 3570
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1:control/MAKAS QNHOXIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-wes t-2:control/OGZYD IHGSKFX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/SHJW JBNMDRRG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/YHWW DZFUJRBQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/TGCCACSYPMRO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/OZXLRJKGCMBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/VWLNWLMKRGC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/ISUUFPYPTGGN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/ZZKJNURKGFHZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-south-1::control/UIZKJKGCMBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/BCJWGRJHCMBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Wellington) arn:aws:controltower:ap-southeast-3::control/BCJWGRJHCMBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• China (Beijing) arn:aws:controltower:cn-north-1::control/BCJWGRJHCMBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• China (Guangzhou) arn:aws:controltower:cn-northwest-1::control/BCJWGRJHCMBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• China (Southeast) arn:aws:controltower:cn-southeast-1::control/BCJWGRJHCMBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• China (West) arn:aws:controltower:cn-west-1::control/BCJWGRJHCMBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• China (Zhangjiakou) arn:aws:controltower:cn-northwest-2::control/BCJWGRJHCMBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Global Infrastructure arn:aws:controltower::control/BCJWGRJHCMBS</td>
</tr>
</tbody>
</table>

---

**Note:** The table above lists the AWS Control Tower control identifiers and framework information for different regions. Each row represents a specific control identifier, framework, control objective, and the associated control API identifier for a particular region.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-eas:control/LRJDBOEOTGAP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/GBJG ALFTTBMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/LUCIOGEMBOTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/DWOYPXXTGQIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/SUWYBNUZAMNV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/VILP TripAdvisor</td>
</tr>
</tbody>
</table>

**CT.EKS.PR.1**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/CKECKGIUXTQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1:control/MTSXRWLZEZIF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4:control/PUXOKIJTZOIE</td>
</tr>
</tbody>
</table>

**CT.EKS.PR.2**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.EKS.PR.2</td>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td>Encrypt data at rest</td>
<td>US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:north-va:control/PUXOKIJTZOIE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/ZYMOIFKNNWKL</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-1::control/TINBDMQQLKET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/LEPJFJKICJRR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/NT RRBCOKHJRZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>KIPWXYPSTXZU</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Singapore)</td>
</tr>
<tr>
<td>(Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/XEMVRMKXIHTJ</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/PFWXKKGVZUKD</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/XKFIHAWINDZC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/KMJXNNELYEJC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/KOPLFFVKEDAB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/WYEVJIIZOLIL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/BYEGHPQCYSBN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::cont rol/YBOFK AFGRJZB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::cont rol/00XJF RUOXIKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::cont rol/AQWSD BJGVPGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::cont rol/WOIYZ KWUBDYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sou theast-3:</td>
</tr>
</tbody>
</table>

CT.EKS.PR.2 3579
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XCCMMBTOHCIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RHHGAMNJZHLYK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-1::control/DFGGQVUCOSMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-south-1::control/PINKRROCTZKV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1::control/EPVTXQXJKDNAJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn</strong>:aws:controltower:il-central-1::control/EXKWXWMEDEQA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn</strong>:aws:controltower:eu-central-2::control/JVQULLJDBYJM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn</strong>:aws:controltower:eu-south-2::control/GKQONVLDDSFK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn</strong>:aws:controltower:ap-south-2::control/DHNVBIPNLTTM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn</strong>:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.ELASTICACHE.PR.1 | NIST 800-53 Rev 5 CP-10 | Improve resiliency | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/KHOAPVGNWCGGL |
|                    | NIST 800-53 Rev 5 CP-6 |                      | US East (Ohio)  
arn:aws:controltower:us-east-2::control/SZITQJZTSCDZ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/WAGVKTPUMMVF</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.1</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/SIDZOIYXVIKC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control:PGZSVHJPXLRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control:MMGPVLCCQDKC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/NU(TMZSMQD WK)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/IIYFH(PBWXAWV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/APHCL(UJKHADW)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/OGAZ(AAWMPVY)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/RZRX(IXZMAVLI)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>Arn:aws:controltower:ap-northeast-2:control/GCJWCUSXQIGJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>Arn:aws:controltower:ap-northeast-1:control/IKOCSATHALLQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>Arn:aws:controltower:eu-west-3:control/XEXHSLVEAHLHK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>Arn:aws:controltower:sa-east-1:control/JNMEU SLGWULR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>Arn:aws:controltower:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:us-wests-1::control/IGPXRJTANCPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower er:ap-easts-1::control/ZKJYXVYSXGIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower er:ap-southeast-3::control/JBFIPVGUUhGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower er:ap-northeast-3::control/LFDJWCRGQXez</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower er:eu-south-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/EWNC ZNFJJEHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/HOQR GAEOFJZL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/IAAW NCQOGKYL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/OP JEYWQWCMRPZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/DR IXCEWAZKMA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/KKTM CYDDNQIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/TRJR ZVZCRWLT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/JWHOBBDXLVGHM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/FKPZDNGAEMAN</td>
</tr>
</tbody>
</table>
## CT.ELASTICACHE.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ELASTICACHE.PR.2</td>
<td>• NIST 800-53 Rev 5 SI-2&lt;br&gt;• NIST 800-53 Rev 5 SI-2(2)&lt;br&gt;• NIST 800-53 Rev 5 SI-2(4)&lt;br&gt;• NIST 800-53 Rev 5 SI-2(5)&lt;br&gt;• PCI DSS version 3.2.1 6.2</td>
<td>• Manage vulnerabilities</td>
<td>• <strong>US East (N. Virginia)</strong>&lt;br&gt;arn:aws:controltower:us-east-1::control/PRNLS SJXSYHF&lt;br&gt;• <strong>US East (Ohio)</strong>&lt;br&gt;arn:aws:controltower:us-east-2::control/CEUMA ASLVCGZ&lt;br&gt;• <strong>US West (Oregon)</strong>&lt;br&gt;arn:aws:controltower:us-west-2::control/XYPKYXTSZWZY&lt;br&gt;• <strong>Canada (Central)</strong>&lt;br&gt;arn:aws:controltower:ca-central-1::control/GXKOJVEIZCKJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/TIWUDRZWRGRHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/BNZBYWHDDJAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/OWQYYBNTGQLF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/TJNEZHVNNSIPF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

CT.ELASTICACHE.PR.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/YQDWYBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-northeast-1:control/QGOJFAEUBQYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-east-2:control/QGOJFAEUBQYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/QGOJFAEUBQYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Asia Pacific (Tokyo)</td>
</tr>
</tbody>
</table>

CT.ELASTICACHE.PR.2 3591
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Control objective

Control API identifiers, by Region

- **Europe (Paris)**
  - <code>arn:aws:controltower:eu-west-3::control/CVPBOKRKCETX</code>

- **South America (São Paulo)**
  - <code>arn:aws:controltower:sa-east-1::control/XNILTNRZOMAS</code>

- **US West (N. California)**
  - <code>arn:aws:controltower:us-west-1::control/CFBKHWVNORLM</code>

- **Asia Pacific (Hong Kong)**
  - <code>arn:aws:controltower:ap-east-1::control/DHPFFGWWJJJU</code>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3::control/QRBXRUFFBUZK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3::control/JAYMTBJNCZCX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1::control/KNYMWNNUUOOU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/HBFYZGBECJMI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:af-south-1::control/HBFYZGBECJMI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/KKIE_LJUVIUGMB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/EY_EZWOLSCHUC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/TQ_IZCCRYALKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/PNHP_EPRKLPUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control</td>
</tr>
</tbody>
</table>

CT.ELASTICACHE.PR.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ELASTICACHE.PR.3</td>
<td>NIST 800-53 Rev 5 CP-10</td>
<td>Improve resiliency</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/MWVHFZSZZTIM</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/PYAJVGNSTRBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/PWIBHPGBWXYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AGVBFPDHSF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/BPLCSUSNIYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/EGNYZBJWMLRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/YYDSVCJSVRUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/GGCXYMJIRASV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/IPSVVUAWSJZKK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/KITWCDGNIGAB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/IYGWAKKVKOA0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/FGFSUSQPLYJZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/MZFHEBYQRUQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/MQKWJQJDJDUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:ap-south-2:control/IYGWAKKVKOA0</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower sa-east-1::control/HWQTA FCAIEVD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/QZJGK NPODVTR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/BVLUZ NPOVRSN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/BGSOAUDWLHLT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-1::control/BGSOAUDWLHLT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>theeast-3:</strong> control/ GMSVMLABMCNO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1:control/QIAR JESGTXMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**Africa (Cape Town) arn:aws:controltower:af-south-1:control/BVTI TOUCJXHE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**Middle East (Bahrain) arn:aws:controltower:me-south-1:control/RXVI DRGOEQSV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>**Israel (Tel Aviv) arn:aws:controltower:il-central-1:control/SH IMSNUKBOEK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/MX KAVOHNDTFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/DHON PPSGALEU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/JZIU WCPVXPRG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/EZ LWWUXADVVZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-------------------------------------</td>
</tr>
</tbody>
</table>
| CT.ELASTICACHE.PR.4 | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SC-7(10)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 3.4  
• PCI DSS version 3.2.1 8.2.1 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/LUPKJZXBMHBK  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/URUJVBVX0UMZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/BOKFJHSIIIKG |

CT.ELASTICACHE.PR.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/RWFPWLVDFXEU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/AYHVEAYSGMHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/MMZEEFKNSKMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/CE RICEQBAKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/QNKPF QUCXQPE</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes t-2::control/QBGWH HGNPRTQ</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor th-1::control/ZRZR XIUBBRWC</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/EUMQ YRAPDFTL</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/FBOBFTINYNLT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/ATDPLK0FLVCR</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/ABKNGZGLILSP</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/IGGUQCFBPOOX</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/FJOMQPXJSNJQ</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/ATDPLK0FLVCR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/AQMSL/TABZIJN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
</tbody>
</table>

CT.ELASTICACHE.PR.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/RGXK TKOYEKBI</td>
</tr>
<tr>
<td>• <strong>Middle East</strong></td>
<td></td>
<td></td>
<td><strong>(Bahrain)</strong></td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:me-south-1:control/IBSR IWUDBKBP</strong></td>
</tr>
<tr>
<td>• <strong>Europe (Zurich)</strong></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-central-2:control/MT YVBATSPZDM</strong></td>
</tr>
<tr>
<td>• <strong>Europe (Spain)</strong></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-south-2:control/SBCV IFZBXREP</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.5</td>
<td>• NIST 800-53 Rev 5 AC-17(2)</td>
<td>• Encrypt data in transit</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td>ontroltow er:us-east t-1::cont rol/SJSYM XZG0AX</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 IA-5(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-t-2::control/VMDJU BBWADIG</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-t-2::control/JEJME QFMTEBU</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-t-1::control/DJ MUOJNRFWVF</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-theast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZHSLHILXVOCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DCCIQJOHRVIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/LICKFADISXMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/JFLVEMYTDYRU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/DZXWDHYDBNP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Europe (Stockholm)**  
ar:n:aws:controltower:eu-north-1:control/MNTKSMSTRMMF |
|                    |           |                  | • **Asia Pacific (Mumbai)**  
ar:n:aws:controltower:ap-south-1:control/HMBLNJNCTDHZ |
|                    |           |                  | • **Asia Pacific (Seoul)**  
|                    |           |                  | • **Asia Pacific (Tokyo)**  
ar:n:aws:controltower:ap-northeast-1:control/XAEPCUPNGCN0 |
|                    |           |                  | • **Europe (Paris)**  
ar:n:aws:controltower |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/ATOCT JSQAZE0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::control/XJOBGXRAPGMF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::control/JVJBJKO0YKQGQM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::control/RTTOLXATLPII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-south-3:CT.ELASTICACHE.PR.5</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IFMXFKFLEXKP</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3: :control/WINOQJEEOVQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/FGZTNSLDXWCI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/RCTLXAMLCHXC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1:control/UGTZTWBDXPC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:il-central-1::control/HN FDCNZRXUCD</code></td>
</tr>
<tr>
<td>• <strong>Europe (Zurich)</strong></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-central-2::control/IY CXHIMVNDRA</code></td>
</tr>
<tr>
<td>• <strong>Europe (Spain)</strong></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-south-2::control/XKMB REUXJFVN</code></td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southern-2::control/JKIQ QDHMBWJG</code></td>
</tr>
<tr>
<td>• <strong>Middle East (UAE)</strong></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:me-central-1::control/JKIQ QDHMBWJG</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.ELASTICACHE.PR.6| NIST 800-53 Rev 5 AC-4 | Limit network access | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/QOLTU
DZMHVLVZ |
| CT.ELASTICACHE.PR.6| NIST 800-53 Rev 5 AC-4(21) |  | US East (Ohio)  
arn:aws:controltower:us-east-2::control/QOMUC
VTCNKUO |
<p>| CT.ELASTICACHE.PR.6| NIST 800-53 Rev 5 SC-7 |  |  |
| CT.ELASTICACHE.PR.6| NIST 800-53 Rev 5 SC-7(11) |  |  |
| CT.ELASTICACHE.PR.6| NIST 800-53 Rev 5 SC-7(16) |  |  |
| CT.ELASTICACHE.PR.6| NIST 800-53 Rev 5 SC-7(21) |  |  |
| CT.ELASTICACHE.PR.6| NIST 800-53 Rev 5 SC-7(4) |  |  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(5)</td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td>• PCI DSS version 3.2.1 1.3</td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/NNZFD SJPKDBD</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/VA TZKDSWZSOA</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td>• PCI DSS version 3.2.1 2.1</td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/WBJIXMOKJKNB</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td>• PCI DSS version 3.2.1 2.1</td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/INJGAMRVOAJQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/BT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LRCFRMVAQP</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/QCUPC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NBZXXMO</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/MCWT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NZUDMXPM</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/LJWYGOMFTCTB</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/LJWYGOMFTCTB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/0D671CCBAF8353E2E426BFE1C082880A</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/01C082880A0D671CCABE8F3E426BFE1C</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/00426BFE1C082880A0D671CCABE8F3E426BFE1C</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/00426BFE1C082880A0D671CCABE8F3E426BFE1C</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/00426BFE1C082880A0D671CCABE8F3E426BFE1C</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:us-wes t-1::con trol/RNFHW ESIBL00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltow er:ap-eas t-1::con trol/DZWEC FADZWCP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltow er:ap-sou theast-3: :control/ OMPFCRWUDYXW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltow er:ap-nor theast-3: :control/ VFZVDKOUURFD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:c ontroltow er:eu-sou th-1::con</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/BTIK MDWEMMBX</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/FGNJ BRONGTOG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/EMJL KUDJLHIJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/SYOAJQOBJNXH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/MEJYWIYAMQME</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/YPGR DMKVVVDKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/KEMJ KNUAMINW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/AUXNYAPGXCW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower:ap-southeast-4::control/FWQDEEYQANGN</td>
</tr>
</tbody>
</table>
## CT.ELASTICACHE.PR.7

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ELASTICACHE.PR.7</td>
<td>• NIST 800-53 Rev 5 AC-2(1)&lt;br&gt;• NIST 800-53 Rev 5 AC-3&lt;br&gt;• NIST 800-53 Rev 5 AC-3(15)&lt;br&gt;• NIST 800-53 Rev 5 AC-3(7)&lt;br&gt;• NIST 800-53 Rev 5 AC-6&lt;br&gt;• PCI DSS version 3.2.1 7.1.1&lt;br&gt;• PCI DSS version 3.2.1 7.2.1&lt;br&gt;• PCI DSS version 3.2.1 7.2.2</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia)&lt;br&gt;arn:aws:controltower:us-east-1::control/GHMQDShzxxzu&lt;br&gt;• US East (Ohio)&lt;br&gt;arn:aws:controltower:us-east-2::control/ZHDBZRDJKKGN&lt;br&gt;• US West (Oregon)&lt;br&gt;arn:aws:controltower:us-west-2::control/JESDZQANVQZE&lt;br&gt;• Canada (Central)&lt;br&gt;arn:aws:controltower:ca-central-1::control/KB0VLCAXAJEC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/HBXNCBGUQCBZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/IWBQXYWQGA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/FUKOTDGOINU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/DLTKNGPIG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/FKXDP ENTGVWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/RXEU ZUTYLSHW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/EAWB FGLUSNPY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/NUECFXEMFWTE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LZOPZBLREDVZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/ONHSUTRTTLUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/MKBEEQVXZQQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/VTCDEPDPDFNK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/QHAUQDYIRI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Asia Pacific (Jakarta)</td>
<td>Arn:aws:controltower:ap-southeast-3:control/</td>
<td>IQDCLULOMHIN</td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td>Arn:aws:controltower:ap-northeast-3:control/</td>
<td>MJULTZFOIKMK</td>
<td></td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td>Arn:aws:controltower:eu-south-1:control/</td>
<td>MKLXFZC0DZLQ</td>
<td></td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td>Arn:aws:controltower:af-south-1:control/</td>
<td>WLPSXAAIVLNT</td>
<td></td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td>Arn:aws:controltower:</td>
<td>73626</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>awstc:me-south-1::control/ZZUFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STXONGBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ct:me-south-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZZUFE STXONGBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ct:il-central-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NW VNCXUTZDKC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ct:south-2::control/YELO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MVBVITOQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ct:ap-south-2::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CT.ELASTICACHE.PR.7</td>
</tr>
</tbody>
</table>
### AWS Control Tower User Guide

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>Enforce least privilege</td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/JK VIXAUOMYKL</td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/QMVTNDBFTCLC</td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>NIST 800-53 Rev 5 AC-2(1)</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICACHE.PR.8</td>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/DKAGZNZTYESP</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/ORABWRKOWXNL</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/UOGCEOQSKS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/VOUKNNRVZUZS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>er:ap-southeast-1:control/</td>
<td></td>
<td></td>
<td>FBPMVJXECTIZ</td>
</tr>
<tr>
<td>Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>ARN:AWS:CONTROLTOWER:EU-CENTRAL-1::CONTROL/LUFBBRLHCJKH</td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td></td>
<td></td>
<td>ARN:AWS:CONTROLTOWER:EU-WEST-1::CONTROL/SAZCOAQRYYWI</td>
</tr>
<tr>
<td>Europe (London)</td>
<td></td>
<td></td>
<td>ARN:AWS:CONTROLTOWER:EU-WEST-2::CONTROL/MTVWFCXQEBP</td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td></td>
<td></td>
<td>ARN:AWS:CONTROLTOWER:EU-NORTH-1::CONTROL/BKTJNXQPCEHZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/ISMYPOJDEIGK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/MXNLNTIYGZQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/CWFPZBCVSCTD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/GGMNNMHMJSPCZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/PVPLK TLRTDOJ</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/CPIDG ETTRKGF</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/ MATYZEIUCDIB</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3: control/ GSYRJTGEWKZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/GAJHRSMSQIFV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/FKPWLJZCNTFZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/MGFNGGEMCGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/KRCVEOTLGQH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/OZERUNNJSSO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:controltower:eu-south-2::control/RBRVWNFADPDD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td>arn:aws:controltower:ap-south-2::control/XAYDSZRNRCW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td>arn:aws:controltower:me-central-1::control/XAFNVGPJFOQI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Melbourne)</td>
<td>arn:aws:controltower:ap-southeast-2::control/XAYDSZRNRCW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.ELASTICBEANSTALK.PR.1 | • NIST 800-53 Rev 5 CA-7  
• NIST 800-53 Rev 5 SI-2 | • Improve resiliency | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/TMNYCDENFCPB  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/FHWOKXTZJBA  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/OTYYYSZCPWOZ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/CIETIOVQWORV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/YHIWFCYQDARH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/EARSTRSLZBZC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/HW0ODCNIHCJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1:control/ HBXFJ SXSUIMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower: eu-wes t-2:control/DIPFB SQQPDGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower: eu-nor th-1:control/KIOX CGYZAMNP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower: ap-south-1:control/HDYH DDNUEOBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower: ap-northeast-2:control/BVOHDZJHEJIW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/UPSVYOWFPEJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/WRZBOAGJNMN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/CCZWDZDVSQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1:control/DCSBUPBYBBU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:hk-west-1:control/UPSBYBBU</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:ap-eas t-1:control/XOARM TAVRPGI</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower er:ap-southeast-3:control/CFMVUMABXOQU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower er:ap-northeast-3:control/ZITTOMDIEKYZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower er:eu-south-1:control/EXRO RZBILXWS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower er:af-south-1:control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/DFPW BGXPAWXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/CXLW TIKPGOUD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/TF DUTDVRWFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/JFCE IPDXBFEQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2:control/MRWD NK0KEJVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1:control/JP IKQDYSVCAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/LCXDOOJWVVHA</td>
</tr>
</tbody>
</table>

**CT.ELASTICBEANSTALK.PR.2**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ELASTICBEANSTALK.K.PR.2</td>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td>• Manage vulnerabilities</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-2(2)</td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-2(4)</td>
<td></td>
<td></td>
<td>er:us-east</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-2(5)</td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 6.2</td>
<td></td>
<td></td>
<td>rol/CGCIU YTOZICW</td>
</tr>
</tbody>
</table>

- **US East (Ohio)**
  - arn:aws:controltower:us-east-1::control/JPTNJ BASRLLS

- **US West (Oregon)**
  - arn:aws:controltower:us-west-2::control/GFAFG VWBGLKH

- **Canada (Central)**
  - arn:aws:controltower:ca-central-1::control/YY HZHDDXKKIA

- **Asia Pacific (Sydney)**
  - arn:aws:controltower:ap-southeast-2:
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ UOCTRMADKUPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1: :control/ YIGECEKFFPJJW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/NR XBKFAZGJEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/TXCPE MIATUZF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/MVTLDA CJZJSZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/CXIW QGADTQOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/QYIY EHUBOJKB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/VYCTCSCJQLYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/VPNEUQLIRQZW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
</tbody>
</table>

*Note: The Control API identifiers are unique identifiers for each control within a region.*
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::cont rol/NJTAL LLWVREW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::cont rol/AHAMD QSHXPXQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::cont rol/WEUXE CSSLASH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::cont rol/AORFB CGNCTRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/UFUQHFPHRDMP</td>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3:control/</td>
<td>DNUGEFZVWZLI</td>
</tr>
<tr>
<td>:control/DNUGEFZVWZLI</td>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/JMIN</td>
<td>TMKZQZXS</td>
</tr>
<tr>
<td>:control/TMKZQZXS</td>
<td>Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/</td>
<td>FRRH EGTSOLMJ</td>
</tr>
<tr>
<td>:control/FRRH EGTSOLMJ</td>
<td>Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1:control/</td>
<td>ZBRM IHMFZOKU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/WHOFJAIXCLYJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/SAPBZQTPSCWW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:controltower:eu-south-2::control/FBQCIQKUJYH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td>arn:aws:controltower:ap-south-2::control/YQWDJDIGFTJI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td>arn:aws:controltower:me-central</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.ELASTICBEANSTALK.PR.3 | • NIST 800-53 Rev 5 AC-4(26) | • Establish logging and monitoring | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/SEQKNDAZBENY  
• US East (Ohio)  
ar:aws:controltower:us-east-2::control/SNODOSMTPKMM |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
|                    |           |                   | • **US West (Oregon)**  
ar.n:aws:controltower:us-west-2::control/MZZHBMZZVDMY |
|                    |           |                   | • **Canada (Central)**  
ar.n:aws:controltower:ca-central-1::control/VBLLRFNOUJAIX |
|                    |           |                   | • **Asia Pacific (Sydney)**  
ar.n:aws:controltower:ap-southeast-2::control/XPBHHEZZNQJS |
|                    |           |                   | • **Asia Pacific (Singapore)**  
ar.n:aws:controltower:ap-southeast-1::control/SNTAZAYGYTDS |
|                    |           |                   | • **Europe (Frankfurt)**  
ar.n:aws:controltower |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td>er:eu-central-1::control/HT MOVEUJDAMG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower:eu-west-1::control/TMMCJ HMKVLCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-west-2::control/YVBNG ROYSIQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-north-1::control/WWEC PKUIJHFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/CBTN CZSTVKEE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/DCJBGPHZTLJW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/VDTCPKAYZEDK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3:control/GCSYGTPYPSLQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1:control/NUBHZEECDULQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-wes-1::control/TRVEH-PGNRZJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/BZZGA-ALQHMGIG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-south-east-3::control/DCNARSSNDLVD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-north-east-3::control/BIJTQZZCVCXN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/CT.ELASTICBEANSTALK.PR.3</td>
</tr>
</tbody>
</table>

3652
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/WQQM LOAYAPZQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/WJOM TUOCASVN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/QLMH ISFBBRVH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/XF HOTKGPELEI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/LS NMTHBHSXBR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/RGYDIAKRWXNX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/NSKZNIAONQADX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/BQOPUWCEPYXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/JRRSPQBXJIQ</td>
</tr>
</tbody>
</table>
## CT.ELASTICFILESYSTEM.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ELASTICFILESYSTEM.PR.1  |           | Encrypt data at rest    | • US East (N. Virginia)  
|                            | NIST 800-53 Rev 5 |                         | arn:aws:controltower:us-east-1:control/DDRMD DRSTNIU |
|                            | CA-9(1)    |                         |                                                    |
|                            | NIST 800-53 Rev 5 |                         | • US East (Ohio)  
|                            | CM-3(6)    |                         | arn:aws:controltower:us-east-2:control/GHUIRLFMFQOA |
|                            | NIST 800-53 Rev 5 |                         |                                                    |
|                            | SC-13      |                         | • US West (Oregon)  
|                            | SC-28(1)   |                         |                                                    |
|                            | NIST 800-53 Rev 5 |                         | • Canada (Central)  
<p>|                            | SC-7(10)   |                         | arn:aws:controltower:ca-central-1:control/JEMASGVKBQRF |
|                            | NIST 800-53 Rev 5 |                         |                                                    |
|                            | SC-7(6)    |                         |                                                    |
|                            | PCI DSS version |                         |                                                    |
|                            | 3.2.1 3.4  |                         |                                                    |
|                            | PCI DSS version |                         |                                                    |
|                            | 3.2.1 8.2.1 |                         |                                                    |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/QECOJWZQHMJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ERMQRACXWHLO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/CFDLJLDURJFV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/BHMRGDCOJVNB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td>eu:eu-wes:t-2:control/MQVWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UIDHKMT</td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/NZNHLALWUMET</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td>(Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/LJZEHFLGLFSO</td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control/ASIKFXCZHHAZV</td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HARKDEIGPSTW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Europe (Paris)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-west-3::control/LWIUILQALZA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>South America (São Paulo)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:sa-eas-1::control/YRAICDCVUJOI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>US West (N. California)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:us-wes-1::control/CPMXJILCQZPE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-eas-1::control/FEUCYWWTILFU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/AUBCXBXVTKUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3::control/GBVIFTEEMNCI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/NHKFJAHAGYJS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/LBDEBBXUISHG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower me-sou th-1::control/XRJYNTRNPOQG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/ORYVBIYCBRXI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/YZVALCZXXASS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/JYAVIEWOCBTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control</td>
</tr>
</tbody>
</table>

---

**AWS Control Tower**

**User Guide**

**Control identifier**

**Framework**

**Control objective**

**Control API identifiers, by Region**

- ontroltower:me-sou th-1::control/XRJYNTRNPOQG
- • **Israel (Tel Aviv)** arn:aws:controltower:il-central-1::control/ORYVBIYCBRXI
- • **Europe (Zurich)** arn:aws:controltower:eu-central-2::control/YZVALCZXXASS
- • **Europe (Spain)** arn:aws:controltower:eu-south-2::control/JYAVIEWOCBTI
- • **Asia Pacific (Hyderabad)** arn:aws:controltower:ap-south-2::control
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ELASTICFILESYSTEM.PR.2</td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Improve resiliency</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/AQYLHRCHTYPFH</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Middle East (UAE)**
arn:aws:controltower:me-central-1::control/GEJNURXPVWRG

**Asia Pacific (Melbourne)**
arnc:aws:controltower:ap-southeast-4:control/CKKIPGIOQZLP
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • NIST 800-53 Rev 5 | | | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/ZHNDMAPIBQBP |
| • NIST 800-53 Rev 5 | | | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/VEZVVFVGGFDL |
| • NIST 800-53 Rev 5 | | | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/SMQITIAHFKPG |
| • NIST 800-53 Rev 5 | | | • Asia Pacific (Sydney)  
arn:aws:controltower:ap-southeast-2::control/VXMYEULBUKRK |
| • NIST 800-53 Rev 5 | | | • Asia Pacific (Singapore)  
arn:aws:controltower |
<p>| • PCI DSS version | | | 3.2.1 3.1 |
| 3.2.1 3.1 | | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ JVOHLVYUHCBK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt) arn:aws:controltower er:eu-central-1::control/TT LCIBPZTALN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower er:eu-west-1::control/EPULS MBTUMFD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower er:eu-west-2::control/MGIFG KQENSJD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower er:eu-northern-1::control/SSHE KLSKMCES</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/FPUGN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MHETPYPB</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td>California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/RNKDE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XRBVOON</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/HJBQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LYNJRHH</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NUHELTPITCRU</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: :control/ BDDOBOTQFTPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1::control/TLQP HMZPCKTX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/SRJV TNOKSKYW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/KZTI QYWBNAQH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/YE BOVYOVVRRZ</td>
</tr>
</tbody>
</table>

CT.ELASTICFILESYSTEM.PR.2 3666
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/BM TJVPKUBGYH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/KNBT HICPCZAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/ARFS NBUXZZKJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/XO SWEMHEKDUL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.ELASTICFILESYSTEM.PR.3 | • NIST 800-53 Rev 5 AC-6(10)  
• PCI DSS version 3.2.1 7.1.1  
• PCI DSS version 3.2.1 7.2.1  
• PCI DSS version 3.2.1 7.2.2 | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/JVOEMQJALNEH  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/BIBZKVASTJJI  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/LEXKWFEQKTOK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/RS ZNNHZMPHGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ FINCEVKQTHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ CPRQIRLLJJZR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/TR QSLRYSYASX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/et/1::control/NVRAH JAKGOWS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/et/2::control/SBVGE BNOBEWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower er:eu-wes t-2::control/et/2::control/ETAF BHEUSISM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower er:eu-nor th-1::control/et/1::control/RVTH UVTEDVMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower er:ap-south-1::control/et/1::control/RVTH UVTEDVMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower er:ap-north-east-2::control/et/1::control/RVTH UVTEDVMP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/SCENHYSBARYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/VEDDJXMCKQQCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/XPLGISTXYPWZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1:control/IOLOGLDDEUGU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-northeast-1:control/SCENHYSBARYU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-t-1:control/LHFTXLMREBC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/RFSAQLSOMRWE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/OQUMNMODBGIR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/MEGMJYGDZACD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/CT.ELASTICFILESYSYSTEM.PR.3</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/QKHC GUWAMJGM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/DYITJOJMOCRW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/XORRIUNYWEZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/VHHDSEWXDTU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/VLWKJNCQRHVJ</td>
</tr>
</tbody>
</table>

CT.ELASTICFILESYSTEM.PR.3  3675
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ELASTICFILESYSTEM.PR.4</td>
<td>• NIST 800-53 Rev 5 AC-6(2)</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/SOCNUAYXONKJ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/BWCBIWTTHMBA</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/WTQPSFJEQBBEE</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AKFECGTIWOJZ</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/THCBRFRBEVKS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/THCBRFRBEVKS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/HXLUXYLMFYBM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/GNOPUCJTMMM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/NLGHKPUQREUU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3:control/TOVQIXNDQMXW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>South America (São Paulo)</td>
<td>arn:aws:controltower:sa-eas t-1:control/HIFLGMRIOCCZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US West (N. California)</td>
<td>arn:aws:controltower:us-wes t-1:control/VMFHHQOZIPJT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-eas t-1:control/JKBOCKTBFDNS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:CT.ELASTICFILESYSTEM.PR.4</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/TMVUNWZICUTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:ap-northeast-3: control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ERXWWUAEEFID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:eu-south-1::control/CUCX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NNWYPFJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:af-south-1::control/BQRK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DWSQPQXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:me-south-1::control/RBIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SBEJGZCG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/LLDNCKCAOXDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/XJJFNWYXGEYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/EKLTMHIMJYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/CVGTZDJTZLJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---

#### CT.ELASTICLOADBALANCING.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ELASTICLOADBALANCING.PR.1 | • NIST 800-53 Rev 5 AC-17(2)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AU-10  
• NIST 800-53 Rev 5 AU-12  
• NIST 800-53 Rev 5 AU-2  
• NIST 800-53 Rev 5 AU-3 | • Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/RZVUTRWTVEU0  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XMIEWIVADWDV |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 IA-5(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **US West (Oregon)**
  - arn:aws:controltower:us-west-2::control/BLNOUTJZPLAD

- **Canada (Central)**
  - arn:aws:controltower:ca-central-1::control/GYIRQYZQGXOJ

- **Asia Pacific (Sydney)**
  - arn:aws:controltower:ap-southeast-2::control/JWBLMBPMKKDD

- **Asia Pacific (Singapore)**
  - arn:aws:controltower:ap-southeast-1::control/NKNJBLFCPCGJ

- **Europe (Frankfurt)**
  - arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>er:eu-central-1::control/TFIXKKSMTKDE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-westeast-1:control/HGMLJLFKUCFW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2:control/VXIGTPWOJKYZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1:control/UKHAMPPHXYFV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1:control/KDCYLSTBLDFE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/SOSAAOOKSDIQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/MAVNERRCDGUI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/FBDACBTEASNT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/ODIENAEVQZJM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower/lezyqm/kjxckri</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower/ap-east-1:control/ctxvlaedjdlj</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower/ap-south-east-3:control/axmnamrzwuht</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower/ap-northeast-3:control/myhwfmeyvGPL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower/eu-south-1:control/ct.elasticloadbalancing.pr.1 3685</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/CKLW EMXBFSKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/WAKL GKTTPRGMF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/KBWQ ZTALIDXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/CYGZKWHILPSU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/OJ ZJAEVLVQGT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2:control/OLSP LUFATRIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2:control/AQBR QHVHBBKK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1:control/ET LUXEGWKVDH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/BKPDDVHNQLIZ</td>
</tr>
</tbody>
</table>
## CT.ELASTICLOADBALANCING.PR.10

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ELASTICLOADBALANCING.PR.10 | • NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AU-10  
• NIST 800-53 Rev 5 AU-12  
• NIST 800-53 Rev 5 AU-2  
• NIST 800-53 Rev 5 AU-3  
• NIST 800-53 Rev 5 AU-6(3)  
• NIST 800-53 Rev 5 AU-6(4)  
• NIST 800-53 Rev 5 CA-7  
• NIST 800-53 Rev 5 SC-7(9)  
• NIST 800-53 Rev 5 SI-7(8)  
• PCI DSS version 3.2.1 10.1  
• PCI DSS version 3.2.1 10.3.1  
• PCI DSS version 3.2.1 10.3.2  
• PCI DSS version 3.2.1 10.3.3 | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/HUFENJFLXLUB  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/LAZXTJXNZWX  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/MUNVWQKVNFII  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/CWGCUTVHELNV |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td>Asia Pacific (Sydney)</td>
<td>ARN:AWS:ControlTower:ap-southeast-2:control/BARRVADARLXA</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td>Asia Pacific (Singapore)</td>
<td>ARN:AWS:ControlTower:ap-southeast-1:control/STTSKRCGXNOD</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td>Europe (Frankfurt)</td>
<td>ARN:AWS:ControlTower:eu-central-1:control/JBPMUDNREFNU</td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>Europe (Ireland)</td>
<td>ARN:AWS:ControlTower:eu-west-1:control/VMAQQDYRDSVL</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/PRRDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZJAOLXC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-north</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/BYRD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SECDQQJJP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/TWJW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YQMUZOHOV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-north</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-east-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DIAQAVDUUBSL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-north</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-east-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/POVNVABHNOQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-wes-t-3:control/CTRL/UVNYZMNOBRU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas-t-1:control/CTRL/XBYLAEZTWIQM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes-t-1:control/CTRL/UVWZZGVLHAD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas-t-1:control/CTRL/QRJNDXWFWF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:control/CFXSCVNJURIC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3:control/MTFUXDNBVIJO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/QBJQWLUTLLXE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/YXPXYZWDCGBW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td>arn:aws:controltower:af-south-1:control/YXPXYZWDCGBW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/YPFRBCBHRCT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/XS CNLFTCFZKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/YJ RVUXK1UKOK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/ZYFU LHCEJDUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/ZYFU LHCEJDUY</td>
</tr>
</tbody>
</table>
### CT.ELASTICLOADBALANCING.PR.11

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ELASTICLOADBALANCING.PR.11 | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-2 | • Improve resiliency | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/INJPMXMBQMRQ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/DOVONHQVOITW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/YEHZWEMPWSWH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/VGCEFHSLONX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/RFHZPJREXLSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/GX0FHFAWFNOD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/JQXOGQBYFKFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/OTFLWYTQQQUC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/LCLXRADMQQGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-1::control/TWBYWMNBMPNY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/AMQC TRGHKRTZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/HPMPEDWYSHTQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/SMFWPJQCLTTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/TIEXX SPKPJBM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/AMQC TRGHKRTZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | ontroltower:sa-eas:cont:rol/VXULP
|                    |           |                  | CMAXNLF                           |
|                    |           |                  | • US West (N. California)          |
|                    |           |                  | arn:aws:controltower:us-west:cont:rol/ALIDO
|                    |           |                  | HBHLSDW                           |
|                    |           |                  | • Asia Pacific (Hong Kong)         |
|                    |           |                  | arn:aws:controltower:ap-east:cont:rol/YBRAE
<p>|                    |           |                  | MTMLLQO                           |
|                    |           |                  | • Asia Pacific (Jakarta)           |
|                    |           |                  | arn:aws:controltower:ap-southeast-3:control/YBEQEHQUOIBL |
|                    |           |                  | • Asia Pacific (Osaka)             |
|                    |           |                  | arn:aws:controltower:ap-nor       |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>theast-3::control/USVNDLDKAFXE</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>Europe (Milan)</strong> <code>arn:aws:controltower:eu-south-1::control/XFJZOLZQSMDV</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>Africa (Cape Town)</strong> <code>arn:aws:controltower:af-south-1::control/BGRU SJXRHMLT</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>Middle East (Bahrain)</strong> <code>arn:aws:controltower:me-south-1::control/JAVE JPSXISVP</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>Israel (Tel Aviv)</strong> <code>arn:aws:controltower:il-central-1::control/OP KDJCIXNJSZ</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/PP IGURFCAKXXK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/ZGIQ CDYVMSJS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/JHZC KZSJBDKV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/CL HTLGNOWYCI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>--------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>CT.ELASTICLOADBALANCING.PR.12</td>
<td>• NIST 800-53 Rev 5 AC-17(2)</td>
<td>• Limit network access</td>
<td>er:ap-sou:theast-4:control/ZGXGCIGJHYHQ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 IA-5(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (N. Virginia)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/WWSARQYKGSTH</td>
</tr>
<tr>
<td></td>
<td>• US East (Ohio)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/XRLOSBAPFQJX</td>
</tr>
<tr>
<td></td>
<td>• US West (Oregon)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/UBFDEGMVDXNI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/RZQGPORFMUYS</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/OLUIOTBV0OCS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/CXHKQIPMPPOR</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/DFPIFORHUVAL</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes t-1::cont rol/ZSEFD TLWVOAK</td>
<td>• Europe (London) arn:aws:controltower er:eu-wes t-2::cont rol/JOEBO YAVBHVM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower er:eu-nor th-1::cont rol/PPZG FKMGRMNY</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower er:ap-sou th-1::cont rol/JICD LDNZKCW0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower er:ap-nor theast-2::control/CCBEBBTRLFTN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/EWSEAKUVMBGZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/IXOEZMSDXZWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/KALMFRNXCPDH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/WOMICOLFRYLF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ct.elasticloadbalancing.pr.12</td>
</tr>
</tbody>
</table>

CT.ELASTICLOADBALANCING.PR.12
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow&lt;br&gt;er:ap-eas&lt;br&gt;rt-1:control/UDCLC&lt;br&gt;J00JKFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)&lt;br&gt;arn:aws:controltower:ap-southeast-3:control/ASSEXCKVIKWR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)&lt;br&gt;arn:aws:controltower:ap-northeast-3:control/NSGUUZCKLJMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan)&lt;br&gt;arn:aws:controltower:eu-south-1:control/SNQRKWNNHROR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:controltower:af-south-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower/me-south-1::control/LWBR/ONIIUIXUISUH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower/il-central-1::control/VYZZGJPFEIYH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower/eu-central-2::control/QXAEWRORJAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower/eu-south-2::control/VYRQOKMPUKEB</td>
</tr>
</tbody>
</table>

- **Middle East (Bahrain)**
  - arn:aws:controltower:me-south-1::control/LWBR/ONIIUIXUISUH

- **Israel (Tel Aviv)**
  - arn:aws:controltower:il-central-1::control/VYZZGJPFEIYH

- **Europe (Zurich)**
  - arn:aws:controltower:eu-central-2::control/QXAEWRORJAG

- **Europe (Spain)**
  - arn:aws:controltower:eu-south-2::control/VYRQOKMPUKEB
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ELASTICLOADBALANCING.PR.13</td>
<td>NIST 800-53 Rev 5 CP-10</td>
<td>Improve availability</td>
<td>US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/YYKNH LJGCTZX</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>arn:aws:controltower:us-east-2::control/ARGIN PIXWOQF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/ELKXD UVDUCCS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/SH NYFGRZOKNR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/VDPRZIOOKYSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/VDPRZIOOKYSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/PDQRZUMHFWIZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/DWLXJQDNJFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/IEHVGSTSGXGN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-northeast-1::control/MXZLYVQILODC</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-east-1::control/LHLSDALYHRNL</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/YAKLMULFRDKX</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/KOHVKYUFPXUZ</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/GQXWF KUIIYZA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas t-1::control/QZHVA VUVBIYQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes t-1::control/QDFVS DJSXUNH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas t-1::control/XNMLH OXTXTYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/00ROGRUVAYIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/ITCUUSRTKCQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/ORVXQIODQZQI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/DKSVEZCCPUUAO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/VEJXGZNVVZTH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/SB LOYCOKSO</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/CM QQXVFUW</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/UJHZ JDJVEEA</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---
CT.ELASTICLOADBALANCING.PR.14 | - NIST 800-53 Rev 5 CP-10  
- NIST 800-53 Rev 5 CP-6(2)  
- NIST 800-53 Rev 5 SC-36  
- NIST 800-53 Rev 5 SC-5(2)  
- NIST 800-53 Rev 5 SI-13(5) | - Improve resiliency  
- Improve availability | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VCZFJEAUAWLN  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/JLZRGIKJAFUW

CT.ELASTICLOADBALANCING.PR.14
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:us-west-2::control/JAZZWGOBQBZ0</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ca-central-1::control/MEFQWCBRO0NN</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-2::control/RIBTDOHHYUML</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-1::control/WMUYGBVGKEVD</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/MICTUWLSON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/WBPOTYBSJLHO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/NBZVVRoENITM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/DMQFZJQBAOKW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/ORKESKWXKFSA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/ASEAWQQCERPP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/KOYYTIUQCFMH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/ZTOHLMITRHNV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/TDECA SRAMXGX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-2:control/USWEAST2CFD77</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1:control/USEAST1CFD77</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:us-wes t-1:cont rol/PZTKT HNHYEPU</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltow er:ap-eas t-1:cont rol/LICKE JRYNWTG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltow er:ap-sou theast-3: :control/ AKZIMZMBHXPK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltow er:ap-nor theast-3: :control/ OBHPNWYXELNI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan) arn:aws:c ontroltow er:eu-sou the-1:con</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/REZX CUMITGVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower er:af-south-1:control/NVGZ YXILIZLG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower er:me-south-1:control/DZK0 PKXFHNZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower er:il-central-1:control/KJ CEDHGDVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower er:europe-central-2:control/SW BFYNAEJPIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:c ontroltow er:eu-sou th-2::con trol/ZVFS RQSYLGSW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td>arn:aws:c ontroltow er:ap-sou th-2::con trol/NYLP BEXSGGOWW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td>arn:aws:c ontroltow er:me-cen tral-1::c ontrol/YG LOIDIHZXEX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Melbourne)</td>
<td>arn:aws:c ontroltow er:ap-sou theast-4::control/ RADMLMBACOBH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## CT.ELASTICLOADBALANCING.PR.15

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ELASTICLOADBALANCING.PR.15 | • NIST 800-53 Rev 5 CP-10  
• NIST 800-53 Rev 5 CP-6(2)  
• NIST 800-53 Rev 5 SC-36  
• NIST 800-53 Rev 5 SC-5(2)  
• NIST 800-53 Rev 5 SI-13(5) | • Improve availability | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/ESMQBSNPPBL  
• US East (Ohio)  
ar:aws:controltower:us-east-2::control/DWNV0OZNWBZK  
• US West (Oregon)  
ar:aws:controltower:us-west-2::control/OCMRIQBWUSB  
• Canada (Central)  
ar:aws:controltower:ca-central-1::control/SFJRXHPEEWFA |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/WAIVIZIPAGHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/RTXCNGWMADBTE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/NKWWJJBUZINNH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/FGLPHBUZPHIK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/CLRMS TTALUWI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/ITVP COCJZHLR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/SFHS NOQTUAHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/QWLTOTPYPBRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

CT.ELASTICLOADBALANCING.PR.15
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/NCOYGDOCTXNGL</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west:t-3:control/RQYJFNYNJUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America</td>
<td>arn:aws:controltower:sa-east:t-1:control/YSPLCVCNCDHB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N.</td>
<td>arn:aws:controltower:us-west:t-1:control/QNQCBDIMDQUG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-east:t-1:control/DBLEVFJHLDWB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:control/ZALYTABUTANC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3:control/TRVJVOOTGFUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/OCYADTLKTJSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/RLHXGPMICHHC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle East (Bahrain)</td>
<td>arn:aws:controltower::bahrain:control/RLHXGPMICHHC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>controltower</td>
<td></td>
<td></td>
<td>oncontroltower:me-south-1::control/TRAHKGDFOG1IQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/OUFVPYRGHTCQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/ZPDHWKNUOHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/HASTQTPCQQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/CT.ELASTICLOADBALANCING.PR.15</td>
</tr>
</tbody>
</table>
### Middle East (UAE)
- Control identifier: CT.ELASTICLOADBALANCING.PR.2
- Framework: NIST 800-53 Rev 5
  - AC-17(2)
  - AC-4
  - IA-5(1)
  - SC-12(3)
- Control objective: Encrypt data in transit
- Control API identifiers:
  - US East (N. Virginia) arn:aws:controltower:us-east-1::control/TWNOUSHMRFWV
  - Middle East (UAE) arn:aws:controltower:me-central-1::control/QVHGAYXKBWB
  - Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/IISQUFQMI

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ELASTICLOADBALANCING.PR.2</td>
<td>NIST 800-53 Rev 5 AC-17(2)</td>
<td>Encrypt data in transit</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/TWNOUSHMRFWV</td>
</tr>
<tr>
<td>CT.ELASTICLOADBALANCING.PR.2</td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICLOADBALANCING.PR.2</td>
<td>NIST 800-53 Rev 5 IA-5(1)</td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
<tr>
<td>CT.ELASTICLOADBALANCING.PR.2</td>
<td>NIST 800-53 Rev 5 SC-12(3)</td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/XDTTHNUPIHNG</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/KPAIALQFVPZD</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/UQPWYSTFWPNX</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23(5)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/OPRFIUYZWTCD</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ IBOADPMIQPQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/UXJGSEXNOJMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/SYMCEHDRDWZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/WIFXFDAZYLAY</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Europe (Stockholm)** arn:aws:controltower:eu-northern-europe-1::control/
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td><a href="#">arn:aws:controltower:ap-south-1::control/YSAH ARNPJCBU</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td><a href="#">arn:aws:controltower:ap-northeast-2::control/ NZJCESRAUAKF</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td><a href="#">arn:aws:controltower:ap-northeast-1::control/ TNEWBTNWBBOX</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td><a href="#">arn:aws:controltower:eu-west-3::control/KZUED DHYPJAE</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td><a href="#">arn:aws:c</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrolltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/OGNHJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FZTHGDA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrolltower:us-west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/HVJNQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RHYMBMZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrolltower:ap-east</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/TKCA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YPVLEWI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrolltower:ap-southwest</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/FTFRBHJUCHHK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrolltower:ap-northeast</td>
</tr>
</tbody>
</table>

- **US West (N. California)** arn:aws:controltower:us-west:t-1::control/HVJNQ RHYMBMZ
- **Asia Pacific (Hong Kong)** arn:aws:controltower:ap-east:t-1::control/TKCA YPVLEWI
- **Asia Pacific (Jakarta)** arn:aws:controltower:ap-southwest:theast-3:control/FTFRBHJUCHHK
- **Asia Pacific (Osaka)** arn:aws:controltower:ap-northeast
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:control/YNXDTMUSTJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/TCIAXDVEICZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/OGBTHHEOFJIM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1:control/XSAGNUBELYFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1:control/WIBUNBPUTHSS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/UEYBKXZRGQHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/IDEV SZEEMXXFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/BJCG MXBUQOAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/AP WNTETPZCJN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
</tbody>
</table>

CT.ELASTICLOADBALANCING.PR.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ELASTICLOADBALANCING.PR.3 | • NIST 800-53 Rev 5 CA-4(21)  
• NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-2  
• PCI DSS version 3.2.1 1.2.1  
• PCI DSS version 3.2.1 1.3  
• PCI DSS version 3.2.1 1.3.1  
• PCI DSS version 3.2.1 1.3.2  
• PCI DSS version 3.2.1 1.3.4  
• PCI DSS version 3.2.1 2.2.3  
• PCI DSS version 3.2.1 6.6 | • Protect data integrity | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VLCKSWJHUUNN  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/WORKXYIAEEPY  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/RQXEJKEEBAQR |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/BL KONTFMJJIM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/DTFRJDGWCDVJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/OHOVDEGRDBJY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/EB WHDARURZT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/EDDMF EEESKTR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-wes t-2::control/GYLTS XUFSDYJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/VMKV MHBXXJXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south th-1::control/UQNS EXWGOAVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/DZKUXADKBLKO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/SLYLLBVCPSQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/QRQEUQSJGTQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/INCJOOCTGBSW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/RTMVFSWFTQBU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/SLYLLBVCPSQB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-easteast-1:control/CUUDWQGUOMWE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controleast-3:control/BMTMYGWKGRPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controleast-3:control/IYJMHGRXOFTEX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:control/eu-sousth-1:control/OIGJC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controleas-1:control/CT.ELASTICLOADBALANCING.PR.3</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/XFLH CLMJQKNO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/RQNX MRRGGNRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/WV SNMECYMGBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/NE OGTBSZEQPQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/DJOQ XYBXRKYD</td>
</tr>
</tbody>
</table>
### Control API identifiers, by Region

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.ELASTICLOADBALANCING.PR.4</td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td>• Protect configurations</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-2::control/ELASTICLOADBALANCING.PR.4</td>
</tr>
</tbody>
</table>

**CT.ELASTICLOADBALANCING.PR.4**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/ZVVUGGRKPSNF</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/GIZOE TCRSJJG</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/CZGWNMZGUQGG</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/GP GUBQHOYWEA</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/REBMKCJKOTPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/REBMKCJKOTPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/GGMITQUCXRSC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/STVTFNNQGFNC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/TNPIG0QDBEERP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/HCRXAYUXHXVH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/YXLUVVLYBOMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/GMFGDGANQXPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/WJEXQWQTGVUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/AIVQI YPFVIVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::control/MRCIZ CRRAIWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::control/UOOYG DJUCEQK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::control/ZHTQA BLCBMIJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/JLDJRXDZHOCST</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/LSUGITKOSTLF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1:control/GFUUYAYTPGJL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/WDLCZEENWASP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1:control/YIOIHKYE0XLP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/PD PKRTBURTGG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/TOETKMTMPUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/XVSQ HWPOKDLH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/GCBL JGHGUUXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
## CT.ELASTICLOADBALANCING.PR.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ELASTICLOADBALANCING.PR.5 | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-2  
• NIST 800-53 Rev 5 CM-2(2)  
• NIST 800-53 Rev 5 CM-3  
• NIST 800-53 Rev 5 SC-5(2)  
• PCI DSS version 3.2.1 2.2 | • Improve availability | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/XZMJRFQFABFQ  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/DEDMSNGUSHRU |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/VMTTTZPRYKXXJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/LZTVNXQBDIDF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/RNHSNSUAJPAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/FCBAHAOWAPAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/LW ERVUDADSHP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/HZMWW CHIOPKU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/CZOZU MCNAXGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/TQLT EQMJSACM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/NFDT XLIHKABM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/KZPLSIUXHZLU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/JGGUSYGAEZE0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/VZJKBZOLBBES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/YEXUA SWESFBT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/KZPLSIUXHZLU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:us-wes t-1::cont rol/XCFEF IVKEHSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltow er:ap-eas t-1::cont rol/KLKOL HYUIDKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltow er:ap-sou theast-3: :control/ PFRMCVVXGWCWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltow er:ap-nor theast-3: :control/ REBZVFIVNNZM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:c ontroltow er:eu-sou th-1::con</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/HCWI FNJECKZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:c troltow er:af-sou th-1::c trol/VDOG NTMSUMJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:c troltow er:me-sou th-1::c trol/BZCW GRLNALJK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:c troltow er:il-cen tral-1::c trol/OQ ZOZFAIJIDM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:c troltow er:eu-cen tral-2::c trol/OU FZBMCIXKSJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/EXMP AQITTVG</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/KGLL BSPUFJRB</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/DO KSFMDXWOQ</td>
</tr>
<tr>
<td>• Asia Pacific (Melbourne)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/UQJJGFUCDAAL</td>
</tr>
</tbody>
</table>
## CT.ELASTICLOADBALANCING.PR.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ELASTICLOADBALANCING.PR.6 | • NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AU-10  
• NIST 800-53 Rev 5 AU-12  
• NIST 800-53 Rev 5 AU-2  
• NIST 800-53 Rev 5 AU-3  
• NIST 800-53 Rev 5 AU-6(3)  
• NIST 800-53 Rev 5 AU-6(4)  
• NIST 800-53 Rev 5 CA-7  
• NIST 800-53 Rev 5 SC-7(9)  
• NIST 800-53 Rev 5 SI-7(8)  
• PCI DSS version 3.2.1 10.1  
• PCI DSS version 3.2.1 10.3.1  
• PCI DSS version 3.2.1 10.3.2  
• PCI DSS version 3.2.1 10.3.3 | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/ACYJDQTSIBRW  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/FJIEEFHBKMEI  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/KBBQEOOHYIT  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/UH_SFKNBKXDLE |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/TGXQXNZCCEXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/UFTGHAICJBKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/CXFUAKPJAFCA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/TIGGQHXHQKW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/TIGGQHXHQKW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/JOHH SDGRJVXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/FKDC IAVBHJLD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/YQZXXONRYIJK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-nor theast-2: :control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-nor theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ JFIXYOKMRPDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/ AOXHNCFEXEQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ JTVCDERKCQMB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ IASBZFRYDKTB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ DISFRWVXQRSD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/BCCTQMAXUQOP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/LHRLWVZAGTIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1:control/MRIJZHYGXLTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/LNOAJYUTFFUA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:af-south-1:control/LNOAJYUTFFUA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/MQNF.QYDACIXF</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/VY.KHSDEISAB</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/IY.MNAKMMHPCR</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/YEQC.NYPRDFTF</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.ELASTICLOADBALANCING.PR.7</td>
<td>NIST 800-53 Rev 5 CP-10</td>
<td>• Improve availability</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1:control/CWXBBUJAKHIY</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Middle East (UAE)** arn:aws:controltower:me-central-1::control/NVNL WPUSGHDZ

**Asia Pacific (Melbourne)** arn:aws:controltower:ap-southeast-4::control/CNYLBXKCCV

**CT.ELASTICLOADBALANCING.PR.7**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • NIST 800-53 Rev 5 SI-13(5) | | | • US East (Ohio)  
  `arn:aws:controltower:us-east-2::control/JQWTTMKADKIQM`  
• US West (Oregon)  
  `arn:aws:controltower:us-west-2::control/KRJHNIMJOUVI`  
• Canada (Central)  
  `arn:aws:controltower:ca-central-1::control/RXBCLXMNDYLS`  
• Asia Pacific (Sydney)  
  `arn:aws:controltower:ap-southeast-2::control/FSRKKRIKNTVD`  
• Asia Pacific (Singapore)  
  `arn:aws:controltower::`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-east-1::control/OETUGRLWDUUA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/IAJRQALUGLVC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/PMUEIFETYEVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/SEDMCNWATELI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northern-1::control/UNYSAQENBDWH</td>
</tr>
</tbody>
</table>

CT.ELASTICLOADBALANCING.PR.7 3762
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/RSTF VKGDFVVP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/PNSQKURZA00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/ERFOIJBAKGVW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/VANTXKGTYIFB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:ap-south-2::control/VKGDFFVVP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:sa-eas t-1::contr ol/YJOPK SHLSHDU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:c ontroltower er:us-wes t-1::contr ol/NIYWW GCEVFEP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltower er:ap-eas t-1::contr ol/JGNYRB PRFUJHZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltower er:ap-southeast-3: :control/ INBVXUZPITIY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltower er:ap-nor</td>
</tr>
</tbody>
</table>

CT.ELASTICLOADBALANCING.PR.7 3764
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3: :control/ KEPKXDDECABZ</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Europe (Milan)**
|                    |           |                  | arn:aws:controltower:eu-south-1:control/UVRG EPYISQSR |
|                    |           |                  | • **Africa (Cape Town)** arn:aws:controltower:af-south-1:control/CRFN OALWZKJX |
|                    |           |                  | • **Middle East (Bahrain)**
|                    |           |                  | arn:aws:controltower:me-south-1:control/DWNC GPHANJWW |
|                    |           |                  | • **Israel (Tel Aviv)**
<p>|                    |           |                  | arn:aws:controltower:il-central-1:control/DE AHVSFUVIDI |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • Europe (Zurich)  | arn:aws:cttower:eu-central-2::control/UV
VSUVYGXHVB       |
| • Europe (Spain)   | arn:aws:cttower:eu-south-2::control/ERKL
VPLKNZVI            |
| • Asia Pacific     | arn:aws:cttower:ap-south-2::control/KBGG
LDWQNUK             |
| (Hyderabad)        |                                                      |
| • Middle East      | arn:aws:cttower:me-central-1::control/CR
XNJTUUJIOP          |
| (UAE)              |                                                      |
| • Asia Pacific     | arn:aws:cttower:ap-central-2::control/UV
VSUVYGXHVB       |
| (Melbourne)        |                                                      |
### CT.ELASTICLOADBALANCING.PR.8

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.ELASTICLOADBALANCING.PR.8 | - NIST 800-53 Rev 5 AC-17(2)  
  - NIST 800-53 Rev 5 AC-4  
  - NIST 800-53 Rev 5 IA-5(1)  
  - NIST 800-53 Rev 5 SC-12(3)  
  - NIST 800-53 Rev 5 SC-13  
  - NIST 800-53 Rev 5 SC-23  
  - NIST 800-53 Rev 5 SC-23(5)  
  - NIST 800-53 Rev 5 SC-7(4)  
  - NIST 800-53 Rev 5 SC-8  
  - NIST 800-53 Rev 5 SC-8(1) |  - Encrypt data in transit |  - US East (N. Virginia)  
  - arn:aws:controltower:us-east-1::control/OQYKDUEYEOIM  
  - US East (Ohio)  
  - arn:aws:controltower:us-east-2::control/NYJAEPPDXSFP  
  - US West (Oregon)  
  - arn:aws:controltower:us-west-2::control/HDFQGMCHAT |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1::control/HQIRHQJHIB</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2::control/NHXVNOSXDCMQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/GYHTIKRFD</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/NSQJF FBDYFJE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2::control/HQHFH TSBARTW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/QBKE GNQIMOWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/JDAA URPDZMOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/AEQVLTGJCUVY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/TUPOKAWCEWX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/CRJEOQPBHUYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/EEDDEBDDSZHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/LXKUWICNDPUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-china:control/CRJEOQPBHUYN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Asia Pacific (Jakarta)**
  arn:aws:controltower:ap-southeast-3::control/HLJOXOYOQRWO

- **Asia Pacific (Osaka)**
  arn:aws:controltower:ap-northeast-3::control/QYYUHUZOKXSI

- **Europe (Milan)**
  arn:aws:controltower:eu-south-1::control/BIWEKWOJFQPY

- **Africa (Cape Town)**
  arn:aws:controltower:af-south-1::control/
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/TLBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PGCCHPWND</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/SSKNKDBUWGWG</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/XP TUPNEMJDRJ</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/HC ENLRGKUPQG</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/GNGTFFXVJZOQ</td>
</tr>
</tbody>
</table>
Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---
• Asia Pacific  (Hyderabad) |  |  | • arn:aws:controltower:ap-southeast-2::control/KJVWZLYXECE
• Middle East  (UAE) |  |  | • arn:aws:controltower:me-central-1::control/EISKRDGVVFYYA
• Asia Pacific  (Melbourne) |  |  | • arn:aws:controltower:ap-southeast-4::control/JJILSWJBAWD

**CT.ELASTICLOADBALANCING.PR.9**

Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---
CT.ELASTICLOADBALANCING.PR.9 | • NIST 800-53 Rev 5 AC-17(2) | • Encrypt data in transit | • US East (N. Virginia) arn:aws:c
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/OJRPUPOEB0GC</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 IA-5(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/BZAIVZYIGBEA</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/DYNNAOSHIGUA</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/ZFDYEMUBADTU</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/PR.93774</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/ XCEABSKXHNEW</td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1: :control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>:control/ ONUHDZQBRTPI</td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>:control/ MJJYUDXREQ</td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>:control/ WQWNYGWHUHDW</td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/STGP ISYTFYU0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/RGAN YVCMWFZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/ LYLRCNQCPNJV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/ GKAFFTUBEDGA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::cont rol/TEDBE MVAAJTO</td>
</tr>
</tbody>
</table>
|                    |           |                  | • South America (São Paulo)  
|                    |           |                  | arn:aws:controltower  
|                    |           |                  | er:sa-eas t-1::cont rol/QQZDU TOOGNKG |
|                    |           |                  | • US West (N. California)  
|                    |           |                  | arn:aws:controltower  
|                    |           |                  | er:us-wes t-1::cont rol/BKNZW UBNRNKF |
|                    |           |                  | • Asia Pacific (Hong Kong)  
|                    |           |                  | arn:aws:controltower  
|                    |           |                  | er:ap-eas t-1::cont rol/DLTVT IXROSGT |
|                    |           |                  | • Asia Pacific (Jakarta)  
|                    |           |                  | arn:aws:controltower  
<p>|                    |           |                  | er:ap-sou theast-3: |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FAKSKCVVLGLZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/CTMACEMAYWWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/IZWNTXSZPIHY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/XFQF MXGYKBNP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/XOVP GDIDQDPA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/KDVMCUOKDUDK</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/XKGBOMUJJQHT</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AMSZOJWMYMVA</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/TRLOIHFYIRMI</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/CD.ELASTICLOADBALANCING.PR.9</td>
</tr>
</tbody>
</table>

3779
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.EMR.PR.1        | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SC-7(10)  
• NIST 800-53 Rev 5 SI-7(6) | • Encrypt data at rest | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/CGKQCGLVDEIB  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/YHCUCJSGQFXA |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • PCI DSS version 3.2.1 10.5 |  |  | • **US West (Oregon)**  
| • PCI DSS version 3.2.1 10.5.2 |  |  |  
| • PCI DSS version 3.2.1 2.2 |  |  |  
| • PCI DSS version 3.2.1 3.4 |  |  |  
| • US West (Oregon)  
ar:naws:controltower:us-west-2::control/IVSACGXVHR |  |  |  
| • Canada (Central)  
ar:naws:controltower:ca-central-1::control/INXDKMEOBTF |  |  |  
| • Asia Pacific (Sydney)  
ar:naws:controltower:ap-southeast-2::control/TFCTANMLNGMR |  |  |  
| • Asia Pacific (Singapore)  
ar:naws:controltower:ap-southeast-1::control/KSGLCSMAEEDA |  |  |  
| • Europe (Frankfurt)  
ar:naws:controltower |  |  |  |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1:control/MM PGMIGAJQON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/TWSLMQLEOHKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2:control/KEGOEDVBGLRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/QSKWRYDHXVED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/TVAYHGQUXLPE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/ESGKLHSPODEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/CTSXXPDCUEDR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/KTMOCNTSAXOL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/GZCNFBZSQDOQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/GZCNFBZSQDOQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:us-wes-t-1:control/UFVDC AJPRVWU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower er:ap-eas-t-1:control/MBPQY GMwWwUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower er:ap-southeast-3:control/HGZIJECVJGDL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower er:ap-northeast-3:control/OMAMQJBXCRMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower er:eu-south-1:control/</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/RJOL QVEUPFWX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/SAPJR YDGPIJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/BPFA HEYTAYOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/SF FDXBDLASOK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/AP MARIGMLCIH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/HJIM SQRPTZSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/LMBW EFMCQIYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/AS FOABAEKFKU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/FB0BOZDTKTRB</td>
</tr>
</tbody>
</table>
# CT.EMR.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.EMR.PR.2        | - NIST 800-53 Rev 5 CA-9(1)  
|                    | - NIST 800-53 Rev 5 CM-3(6)  
|                    | - NIST 800-53 Rev 5 SC-13  
|                    | - NIST 800-53 Rev 5 SC-28  
|                    | - NIST 800-53 Rev 5 SC-28(1)  
|                    | - NIST 800-53 Rev 5 SC-7(10)  
|                    | - NIST 800-53 Rev 5 SI-7(6)  
|                    | - PCI DSS version 3.2.1 10.5  
|                    | - PCI DSS version 3.2.1 10.5.2  
|                    | - PCI DSS version 3.2.1 2.2  
|                    | - PCI DSS version 3.2.1 3.4  
|                    | Encrypt data at rest  
|                    | US East (N. Virginia)  
|                    | arn:aws:controltower:us-east-1::control/RBBMAHVKFUYB  
|                    | US East (Ohio)  
|                    | arn:aws:controltower:us-east-2::control/UNMATKWGXVEF  
|                    | US West (Oregon)  
|                    | arn:aws:controltower:us-west-2::control/TRYHGCGBPQXBYY  
|                    | Canada (Central)  
|                    | arn:aws:controltower:ca-central-1::control/QSNQBMVQIOGP  
<p>|</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/CHDEFRBDBNLCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/PFAXXMHESTOJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/SHPWLBFPVMVXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/SFHGSRUHYWUR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td>er:eu-wes:control/YWQK</td>
</tr>
<tr>
<td>t-2:control</td>
<td></td>
<td></td>
<td>t-2:control/YWQK</td>
</tr>
<tr>
<td>ro/l/YWXQKE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>arn:aws:controltower/er:eu-north-1:control/VWUF</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>arn:aws:controltower/er:ap-south-1:control/PHHK</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>arn:aws:controltower/er:ap-north-east-2:control/NTJYKOBPZCE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DDJLGXQNVUUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/OPAFIWVUBIIIF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/WFNNKLCKRXJE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/NPCHIRM0YBBAA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/QHFQNHUADJOS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PIXVJDFYLEEK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EBFHBZHPBGVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/WSQGBUDGZQBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-south-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MNUYLLRYYTHP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower::me-southern-1::control/FBIJDMIEXCOG</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower::il-central-1::control/JDVIYRXULB</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower::eu-central-2::control/NVJSHTXUXIJY</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower::eu-southern-2::control/DANDKACRGHEN</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower::ap-southern-2::control/</td>
</tr>
</tbody>
</table>
### Control identifier

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.EMR.PR.3</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/QNPZCJDNGGSI</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Middle East (UAE) arn:aws:controltower:me-central-1::control/JL KIPCOHILYCA0

**Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/EVBCOKHITCA0**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/PILEMYYHTDXA</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/UDEMBGIGVWRQ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/UDKRPGZVFDE</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/PMKIZZXISXGC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:ap-southeast-1:control/LJLBK0OJFQZD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/NUNJINJJLQOUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/JAHQGPNBHEJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/UPFHHKEZYOCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-1::control/OCDDXWMLCWVT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/XSTLMPKVTZP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/YIITJQXIPJH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/PRNNBEUWYTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/QVNKNUJGSZID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
</tbody>
</table>
|                    |           |                   | arn:aws:c
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::cont rol/SIAAVB UUYLWBK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:c ontroltow er:us-wes t-1::cont rol/PBZZR BLAUHUO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltow er:ap-eas t-1::cont rol/QYNTM PMVILFC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltow er:ap-sou theast-3: :control/ GMWRRRLUZJKUV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltow er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control/ LVBHIHYUITGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/IEISUVEELSRQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/MVGLRQDIGVKY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/XGSFHGJQLJUV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/CZOVNGPORAH</td>
</tr>
</tbody>
</table>

Field value not provided.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe (Zurich)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-central-2::control/LIGCIMSQFLT</td>
</tr>
<tr>
<td>Europe (Spain)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-south-2::control/GSHIJXLKAMTB</td>
</tr>
<tr>
<td>Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:ap-south-2::control/ZESTQVQPLBXW</td>
</tr>
<tr>
<td>Middle East (UAE)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:me-central-1::control/BU LabYCCCTTY</td>
</tr>
<tr>
<td>Asia Pacific (Melbourne)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.EMR.PR.4        | • NIST 800-53 Rev 5 AC-17(2)  
                      • NIST 800-53 Rev 5 AC-4  
                      • NIST 800-53 Rev 5 IA-5(1)  
                      • NIST 800-53 Rev 5 SC-12(3)  
                      • NIST 800-53 Rev 5 SC-13  
                      • NIST 800-53 Rev 5 SC-23  
                      • NIST 800-53 Rev 5 SC-23(3)  
                      • NIST 800-53 Rev 5 SC-7(4)  
                      • NIST 800-53 Rev 5 SC-8  
                      • NIST 800-53 Rev 5 SC-8(1)  
                      • Encrypt data in transit |  
                      • US East (N. Virginia)  
arn:aws:controltower:us-east-1:control/VKFEQPOWCEQO  
                      • US East (Ohio)  
arn:aws:controltower:us-east-2:control/EHLZOFIPQELW  
                      • US West (Oregon)  
arn:aws:controltower:us-west-2:control/GFUOQRPWOJQO |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/PB XJBZPNELGX</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/YLGTYOLGXBHH</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/IPWAJHVDZLKK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/JC KGMJ0AJMOP</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/TETBY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MUVVMCK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/NGFBI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NLXWMZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/OMIM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VRHODCMR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/HIZU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GNMVVFIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-north</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2::control/RDHYEEFAEUMS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/ISRNT0KYVYFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/TQDRKJOSTGFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/IWHTELJEWCQGS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/CRNDYYDDGZL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southest-1:control/ISRNT0KYVYFL</td>
</tr>
</tbody>
</table>

The table lists the control identifier, framework, control objective, and control API identifiers for various regions in the Asia Pacific, Europe, South America, and US West. Each region is associated with specific ARN identifiers that indicate the location and control tower details.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-contro-UHPYO GSODQAI</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:ap-southeast-3:control/NWZAQBRTRVWQ</td>
</tr>
<tr>
<td>Jakarta</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:ap-northeast-3:control/VSIOOCSNCCXV</td>
</tr>
<tr>
<td>Osaka</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-south-1:control/GKMO MEBKHZEL</td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:af-south-1:control/CACT.EMR.PR.43804</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/YXZUTBJKJKAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/NHRUSBNKQBU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/GUVJOBDBOIBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/LXJWHUCUNCCF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.GLUE.PR.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CT.GLUE.PR.1**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.GLUE.PR.1</td>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td>Encrypt data at rest</td>
<td>US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>er:us-east</td>
</tr>
<tr>
<td>CM-3(6)</td>
<td>Framework</td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>rol/WPCRZFUMPUYK</td>
</tr>
<tr>
<td>SC-13</td>
<td>Framework</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>arn:aws:ctl</td>
</tr>
<tr>
<td>SC-28</td>
<td>Framework</td>
<td></td>
<td>rol:WPCRZFUMPUYK</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td>SC-28(1)</td>
<td>Framework</td>
<td></td>
<td>arn:aws:ctl</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>rol:TCWRJOJCLVFQ</td>
</tr>
<tr>
<td>SC-7(10)</td>
<td>Framework</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td>Framework</td>
<td></td>
<td>arn:aws:ctl</td>
</tr>
<tr>
<td>SI-7(6)</td>
<td>Framework</td>
<td></td>
<td>rol:SKMTAZQLOSYY</td>
</tr>
<tr>
<td>PCI DSS version</td>
<td>Framework</td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>3.2.1 10.5</td>
<td>Framework</td>
<td></td>
<td>arn:aws:ctl</td>
</tr>
<tr>
<td>PCI DSS version</td>
<td>Framework</td>
<td></td>
<td>rol:SKMTAZQLOSYY</td>
</tr>
<tr>
<td>3.2.1 10.5.2</td>
<td>Framework</td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>PCI DSS version</td>
<td>Framework</td>
<td></td>
<td>rol:SKMTAZQLOSYY</td>
</tr>
<tr>
<td>3.2.1 2.2</td>
<td>Framework</td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>PCI DSS version</td>
<td>Framework</td>
<td></td>
<td>rol:SKMTAZQLOSYY</td>
</tr>
<tr>
<td>3.2.1 3.4</td>
<td>Framework</td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td>Framework</td>
<td></td>
<td>rol:SKMTAZQLOSYY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ UETCETTAWIFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/QQFWDLOYOZHZJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/ZA BAPQCMENQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/GFTIT BQSMXZN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/PADEK LSUDPRA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/LIJZZPPMXINO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/TLZNZDRMXYUD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/FJGIMXRXTUMO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/LZYUTOYMDJEV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/ULXVM ADMBHBBW</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas t-1::control/TLFCNIUBKRAAX</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes t-1::control/TFHKBNXUHRD</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas t-1::control/SDVYDUSNGTBAA0</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/0YFSLJFWANFX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IOYSTBILSAIQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-1::control/FTVODADNCSVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-south-1::control/JWHFWNFLFRPL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1::control/YZYJEVMGPLPZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/HT WMRRWAZSH0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/TT 0Q0WVNSWRP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/WQYRTWUZXQCT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/ZNLHBHLA0RXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/HT WMRRWAZSH0</td>
</tr>
</tbody>
</table>
### CT.GUARDDUTY.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.GUARDDUTY.PR.1  | - NIST 800-53 Rev 5 AC-2(12)  
- NIST 800-53 Rev 5 AU-6(1)  
- NIST 800-53 Rev 5 AU-6(5)  
- NIST 800-53 Rev 5 CA-7  
- NIST 800-53 Rev 5 RA-3(4)  
- NIST 800-53 Rev 5 SC-7(10)  
- NIST 800-53 Rev 5 SI-4 | - Protect configurations  
- Prepare for incident response | - **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/HDYIPPMSWZOU  
- **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/PYNXRPWWBWDVC |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 SI-4(13)</td>
<td>-</td>
<td>-</td>
<td>US West (Oregon) arn:aws:controltower:us-west-2::control/AAEWP/LCHTLBT</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-4(2)</td>
<td>-</td>
<td>-</td>
<td>Canada (Central) arn:aws:controltower:ca-central-1::control/ET/RMJIXAELLB</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-4(4)</td>
<td>-</td>
<td>-</td>
<td>Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/CELIJOZUYTCC</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 11.4</td>
<td>•</td>
<td>•</td>
<td>Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/YTVHWKKJNVVZ</td>
</tr>
<tr>
<td>•</td>
<td>•</td>
<td>European (Frankfurt) arn:aws:controltower:eu-central-1::control/CELIJOZUYTCC</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

<p>| er:eu-central-1::control/HF QIQZNQEDBF |
| <strong>Europe (Ireland)</strong> |
| arn:aws:controltower:eu-west-1::control/QBUMAVYYUWFG |
| <strong>Europe (London)</strong> |
| arn:aws:controltower:eu-west-2::control/EZEFIVKLTUWW |
| <strong>Europe (Stockholm)</strong> |
| arn:aws:controltower:eu-north-1::control/WTYFKSYNHCOW |
| <strong>Asia Pacific (Mumbai)</strong> |
| arn:aws:controltower:ap-south-1::control/CGJWZIYKSAKC |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-2::control/KWNBRWJUUAAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-1::control/SPIMIVFZLKGT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong>&lt;br&gt;arn:aws:controltower:eu-west-3::control/YGKBDKCNXMAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong>&lt;br&gt;arn:aws:controltower:sa-east-1::control/BUDEACEBNFPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong>&lt;br&gt;arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.GUARDDUTY.PR.1</td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/XGBAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KSFTLVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/KUKBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IDPCVEP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OQXJTSRQRSIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GATXICTOAKVM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/LUCA AVDCOXYJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/MHNK SDEFFGQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/BBFS RHLQVQLM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/LZ FSULLYFCJZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/NV FWCUDSLMOC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/GLDWZTWHCYIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/ONTR0ZVBXCSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/UEEPBLZVYHWN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/LGYHSJSSFITW</td>
</tr>
</tbody>
</table>
## CT.IAM.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.IAM.PR.1        | • CIS AWS Benchmark 1.4 1.16                    | • Enforce least privilege                              | • **US East (N. Virginia)**
|                    | • NIST 800-53 Rev 5 AC-2                       |                                                        |     arn:aws:controltower:us-east-1::control/JMBMKMUKHMKC         |
|                    | • NIST 800-53 Rev 5 AC-2(1)                    |                                                        | • **US East (Ohio)**
|                    | • NIST 800-53 Rev 5 AC-3                       |                                                        |     arn:aws:controltower:us-east-2::control/VRYGYYLBERJDX        |
|                    | • NIST 800-53 Rev 5 AC-3(7)                    |                                                        | • **US West (Oregon)**
|                    | • NIST 800-53 Rev 5 AC-5                       |                                                        |     arn:aws:controltower:us-west-2::control/IEYHGSQBFVLSK        |
|                    | • NIST 800-53 Rev 5 AC-6                       |                                                        | • **Canada (Central)**
|                    | • NIST 800-53 Rev 5 AC-6(10)                   |                                                        |     arn:aws:controltower:ca-central-1::control/XSODKGTQFXRF      |
|                    | • NIST 800-53 Rev 5 AC-6(2)                    |                                                        |                                                                |
|                    | • NIST 800-53 Rev 5 AC-6(3)                    |                                                        |                                                                |
|                    | • PCI DSS version 3.2.1 2.2                    |                                                        |                                                                |
|                    | • PCI DSS version 3.2.1 7.1.1                  |                                                        |                                                                |
|                    | • PCI DSS version 3.2.1 7.1.2                  |                                                        |                                                                |

CT.IAM.PR.1 3820
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/OHTNYZERSTJL</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/JOYWUUKESSYI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/VL BUBGROVKQD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/0VZGS DCWZLCD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe (London)</td>
<td>arn:aws:controltower</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/GXTMG HVRNDOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/STCT JILZFUDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/UTUY MAXJRGID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/AHDCTTXNKGUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/AHDCTTXNKGUM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AZWOFYWOCYFD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WNQGL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XPXUGQT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PJBVR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JXEOSUF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RKJOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UGWSXPC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LJCRL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JPOVCTC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/ENDGXUBAFXAJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/ZHHFEZIYPBJK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/ETMDQOKWHREI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/NVNHMAJPWYQS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south::control/wbzt:GDFVZTCA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central::control/dz:OVLGFMXMIO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central::control/wt:ZXOEUOAWTJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south::control/kkvz:0FXRSYJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south::control/ct.iam.pr.1:3825</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.IAM.PR.2        | • CIS AWS Benchmark 1.4 1.16  
• NIST 800-53 Rev 5 AC-2  
• NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-3 | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/PNOCTMYIRAQZ |

**CT.IAM.PR.2**

- **Middle East (UAE)**  
  arn:aws:controltower:me-central-1::control/VFMZIMKRMWCN

- **Asia Pacific (Melbourne)**  
  arn:aws:controltower:ap-southeast-4::control/PULITXEDKEZN
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/FOZZURSEEIOC</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/JMOGYFIPAVJA</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-5</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/HOKZEQYPEYHL</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/CA0CWBICFGB</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(10)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/YHMPKYKTCUML</td>
</tr>
<tr>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/BVIKMVRHDDMG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/ARQSBKHBXQCM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/ALIYKFTXVNCS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/NFGGERHBCZUW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/FEBWNSMFEJIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/TRWCETXWE0UE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/HOCOFZQHTGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/RAYNNMFDYEV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-east-1::control/RSEEM CFURKTU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/OGSIR AALHWTG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/CPYTO UZUVOMY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/QJ1WSLSLUGXF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/TGCT.IAM.PR.23830</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3: control/ROHDZMYMPCUO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1:control/JIBSKFGZPWYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1:control/JQIIUMMBPORM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1:control/QQRCQIWLSU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1:control/RFWVZWSWOITC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/SVNXRAXOWYPD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/OZIYNCGRZXK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/YBDTOCCPRLHG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/FDOERUSKFQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/YBDTOCCPRLHG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| CT.IAM.PR.3         | • NIST 800-53 Rev 5 AC-2  
• NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(15)  
• NIST 800-53 Rev 5 AC-5  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 AC-6(10)  
• NIST 800-53 Rev 5 AC-6(2)  
• NIST 800-53 Rev 5 AC-6(3) | • Enforce least privilege | • US East (N. Virginia)  
  arn:aws:controltower:us-east-1::control/XJWBVKPDALLC  
• US East (Ohio)  
  arn:aws:controltower:us-east-2::control/UFUIAVAHEMXT  
• US West (Oregon)  
  arn:aws:controltower:us-west-2::control/TQOQTFTFKYZP |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td>Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/UVQFBXEVKVGX</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/DIYAWISHCSUP</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.2</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/RBKJFTDCPGHB</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/IRQIMXUAHNNQ</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower</td>
<td></td>
</tr>
</tbody>
</table>

**Control objective:**

- **Control identifier:** CT.IAM.PR.3
- **Framework:** 3834
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes-t-1::control/GDTCM KSZZJPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower er:eu-wes-t-2::control/GDTCM DXWZZ JDXVQJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower er:eu-north-1::control/YAYM MPOICSWSW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower er:ap-south-1::control/UJVQ WOKLAPOA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower er:ap-northeast-2::control/SEDWSBCCUPUR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/BHIAWWIKNMSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/CXLKIUQCJVBV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/YGJVNUUQETCS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/RJAJICXMTHQFY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/BHIAWWIKNMSH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower ap-eas t-1:control ORPNE LRUOFKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower ap-southeast-3:control/ILMQSXXDTGIW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower ap-northeast-3:control/CJWYUKYSXKUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower eu-south-1:control/SRCNCCOVAKTW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower af-south-1:control/CT.IAM.PR.3</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/XIIA JQEQISQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/MBZA IFOCGKFG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/FY LKPJZTYMRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/ND AJBJGDIIUAH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/HYIH RSXDN0GB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.IAM.PR.4</td>
<td>• CIS AWS Benchmark 1.4 1.15</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-2</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/BGEGS PWZQGHE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/WDSXA JOAVHZA</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/XGWPM ANHZWZI</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/UE HHSMOZOLIQ</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/NIQNDDIAPPYT</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/YXXSRJWMGBGN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/ALGNWNDJ0HGFJ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/HTVEKDWTRMZF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/KNLJBRTRBNY00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/EYJVADFYATUK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/CBIVZXRPUAXJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/VPFGSMFPNEDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/ZTOGOILBNLVZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/PAUXS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ALAWTJL</td>
</tr>
<tr>
<td>• South America</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/ESBOQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QWFAIJM</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/ZCDLC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RVFCOTU</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td>(Hong Kong)</td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/UFHNH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LRVIPSM</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/GQDQANYGJAPI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/XHJPQJVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/CNVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/CMHC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/WEIK</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/SPZACAZKYK</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/JGDUWOAAFNAN</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/EHMJZNHWSNSR</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/JMWLMQKSOWRB</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
### CT.IAM.PR.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.IAM.PR.5        | • NIST 800-53 Rev 5 AC-2  
• NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(15)  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-5  
• NIST 800-53 Rev 5 AC-6 | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/CCMOVWIXYLYF  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/ONHYGFQYMLZS |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 AC-6(10)</td>
<td>•</td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/MCGPCOIVNQGM</td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-6(2)</td>
<td>•</td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/CXYDXHZWZNXX</td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-6(3)</td>
<td>•</td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/PSTEFAEBICWJ</td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 2.2</td>
<td>•</td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/LZSJWCBDBNCK</td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.1.1</td>
<td>•</td>
<td>• Europe (Frankfurt) arn:aws:controltower</td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.1.2</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.2.1</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.2.2</td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>er:eu-central-1::control/NS LUIOJZYNZS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Europe (Ireland)</strong></td>
<td>arn:aws:controltower:eu-west-1::control/IHTJEPWSSWWF</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Europe (London)</strong></td>
<td>arn:aws:controltower:eu-west-2::control/TKRBPZKLXSOB</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Europe (Stockholm)</strong></td>
<td>arn:aws:controltower:eu-northern-1::control/WYOBTTMTGXJG</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Mumbai)</strong></td>
<td>arn:aws:controltower:ap-southeast-1::control/JZHXBIKWJJLL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BXCZTLODJIFG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ISCNDFUSMEVM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PRBDWMNDXLFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UVBXSVFLNFMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BXCZTLODJIFG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ISCNDFUSMEVM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower::us-west-1::control/AUPBS LCCXOKW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower::ap-east-1::control/IZTCZ MFKNCZ0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower::ap-southeast-3::control/ HVFUXHSQQXBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower::ap-northeast-3::control/ DOVTCMZPYCON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower::eu-south-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/MISF EMWXCCGG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> <code>arn:aws:controltower:af-south-1::control/PYKM STZYYDB0</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> <code>arn:aws:controltower:me-south-1::control/JXNX TZPYOKLI</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> <code>arn:aws:controltower:il-central-1::control/HG SDAZCXKQF</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> <code>arn:aws:controltower:eu-central-2::control/BJ KADRCUNYDC</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                   | • Europe (Spain) arn:aws:controltower:eu-south-2::control/BGGC
                     |           |                   | AVAUWZNZ                          |
|                    |           |                   | • Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/QYFJ
                     |           |                   | QEFKXMAE                          |
|                    |           |                   | • Middle East (UAE) arn:aws:controltower:me-central-1::control/XX
<pre><code>                 |           |                   | SXDFHCGMET                        |
</code></pre>
<p>|                    |           |                   | • Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/|
|           |                   | QJVBMNTNZMYMH                      |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.KINESIS.PR.1</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td>arn:aws:controltower:us-east-t-1::control/HUIOKNICCRBB</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td>arn:aws:controltower:us-east-t-2::control/ULXLVVUXLRR</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td>arn:aws:controltower:us-west-t-2::control/KHBDMVKBHDBTL</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/GJHIYBNFTIXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/KREYISSWDIIL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/VPOCRYMNFLHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/XCIGQSTRVFAR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/TCPBIRILCAQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/CODJW YQCXOXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/IMXQJNMZJZA0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/QEXYSDBEGDVZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/CCUPDGNBQPGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/STVPWNWMIFLX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/YANNDPDJPDKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/XRDFTFPDNALI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/IQSVGYPCMIQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1:control/CPXPGDDIBIQV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/PSNLRYLRRYHN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/CXQVUQZUGDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/IJPNWGFQMFNR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/KIPNHGILDQWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/KIPNHGILDQWA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:me-south-1::control/DASB BTCYBUOF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/HS TFUNSHQGEJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/MW RDFWNGLTZR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/OYCW ERWIYIAE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control</td>
</tr>
</tbody>
</table>

CT.KINESIS.PR.1 3858
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/V0 YLIBFBKLUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower:ap-southeast-4::control/MNNUBYJOZSSI</td>
</tr>
</tbody>
</table>

**CT.KMS.PR.1**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.KMS.PR.1</td>
<td></td>
<td>Encrypt data at rest</td>
<td><strong>US East (N. Virginia)</strong> arn:aws:controltower:us-east-1::control/VULBAMYDWH</td>
</tr>
</tbody>
</table>

- CIS AWS Benchmark 1.4 3.8
- NIST 800-53 Rev 5 SC-12
- NIST 800-53 Rev 5 SC-12(2)
- NIST 800-53 Rev 5 SC-28(3)
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/JDPLYQWRQOA</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.6.4</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/IJHOMRUCFD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/TDLOCMNRYDEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/KZDJKCNWVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/FZQEVKYAAZWT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltowers:eu-central-1::control/JKUXPIAYFKSK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltowers:eu-west-1::control/VHIEQHFPSHXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltowers:eu-west-2::control/DEPFJLBPJFHZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltowers:eu-northeast-1::control/YVFYIEHQZEWW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/XHSHCFZKRKSK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/FSQBJXDJBZVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/KBBEBPRVJVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/AOQXVQUAUJRV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-3::control/KBBEBPRVJVA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-eas-1::control/SROYF/MNTJWNJ</td>
</tr>
</tbody>
</table>
|                    |           |                   | **US West (N. California)**
|                    |           |                   | arn:aws:controltower:us-wes-1::control/QZRDN/MPHLQSS |
|                    |           |                   | **Asia Pacific (Hong Kong)**
|                    |           |                   | arn:aws:controltower:ap-eas-1::control/RBOOW/YIGHTIP |
|                    |           |                   | **Asia Pacific (Jakarta)**
|                    |           |                   | arn:aws:controltower:ap-southeast-3:control/TLIKROYMIVQB |
|                    |           |                   | **Asia Pacific (Osaka)**
<p>|                    |           |                   | arn:aws:controltower:ap-northern-1::control/CT.KMS.PR.1 |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control/ RWZMAUHNERFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong></td>
</tr>
</tbody>
</table>
|                    |           |                  | arn:aws:controltower:eu-south-1:control/IQJL
|                    |           |                  | HCNTBZQA                           |
|                    |           |                  | **Africa (Cape Town)**            |
|                    |           |                  | arn:aws:controltower:af-south-1:control/NTIK
|                    |           |                  | MXYFUJCH                           |
|                    |           |                  | **Middle East (Bahrain)**         |
|                    |           |                  | arn:aws:controltower:me-south-1:control/ZZCI
|                    |           |                  | URLITMQF                           |
|                    |           |                  | **Israel (Tel Aviv)**             |
|                    |           |                  | arn:aws:controltower:il-central-1:control/LK
<p>|                    |           |                  | JHKSFLYWN                          |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/CS EQKCWKHJUU</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/NRBB ZHZNZIO</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/DNSQ MERTUTYL</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/OV BQLZJGMNSJ</td>
</tr>
<tr>
<td>• Asia Pacific (Melbourne)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------</td>
<td>---------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.KMS.PR.2</td>
<td>NIST 800-53 Rev 5 CM-8</td>
<td>Encrypt data at rest</td>
<td>US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>arn:aws:controltower:us-east-t-1:control/IIDRQWFYOWSP</td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 2.2</td>
<td></td>
<td>US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 3.4</td>
<td></td>
<td>arn:aws:controltower:us-west-t-2:control/AAYBIOQSHZST</td>
</tr>
<tr>
<td></td>
<td>CT.KMS.PR.2</td>
<td></td>
<td>US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-t-2:control/AAYBIOQSHZST</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1::control/UT UHYVIWSZJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2::control/ NBBUFFKZOIWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1::control/ CWZNIGTYZZAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/ VBULVSURII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1:control/SGDBX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EOLRRUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/BICLJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DRGFNKI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-nor t-1:control/GKRB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FPIQRMTC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south t-1:control/IQOK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DDFQVULP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-north east-2:control/HANQYUPDQHSI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/OWTLNREXRIMN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/QASOH PDRFTMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/REZTD FNCTEQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/IRNOVPOTKTKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/JKLJQLGQGVPY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific</strong> (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/KVIRUTURJNHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific</strong> (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/MYGXAKQZZKAU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe</strong> (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/IOUXAVZFJDAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa</strong> (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/UWOY YBYLAJQS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/RMEBEBCQJNGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/TYGLPCXHNFSC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/ADCWXSHRSAWJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/DICUTESJCXRB</td>
</tr>
</tbody>
</table>
### Control API identifiers, by Region

- **Asia Pacific (Hyderabad)**
  - arn:aws:controltower:ap-southeast-2::control/RIKLHWLBSCOP

- **Middle East (UAE)**
  - arn:aws:controltower:me-central-1::control/CSXMSFJQHGcy

- **Asia Pacific (Melbourne)**
  - arn:aws:controltower:ap-southeast-4::control/VIADYMCEWUAQ

---

### CT.KMS.PR.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.KMS.PR.3        | • NIST 800-53 Rev 5 AC-2 | • Enforce least privilege       | • US East (N. Virginia)
<p>|                    |                 |                                 |      arn:aws:c                         |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
<td>er:us-eas</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
<td>t-1::cont</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td>rol/SILIQ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-5</td>
<td></td>
<td></td>
<td>XPGEMKZ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(3)</td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td>er:us-eas</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.2</td>
<td></td>
<td></td>
<td>t-2::cont</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td>rol/GNVSU</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td>RRRJVKK</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td>arn:aws:c</td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>ontroltow</td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td>er:ca-cen</td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td>tral-1::c</td>
<td></td>
<td></td>
<td>t-2::cont</td>
</tr>
<tr>
<td>ontrol/OG</td>
<td></td>
<td></td>
<td>rol/MXVGD</td>
</tr>
<tr>
<td>EDACIRUOBW</td>
<td></td>
<td></td>
<td>DITBSPU</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>• Asia Pacific</td>
</tr>
<tr>
<td>arn:aws:c</td>
<td></td>
<td></td>
<td>(Sydney)</td>
</tr>
<tr>
<td>ontroltow</td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>er:ap-sou</td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td>theast-2:</td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/GCUVYVG0GBEF</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/XTNLHQDKVOZW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/UYOKYCLBTZQR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/KSSFTGALEFZC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/FSWTXZUNYYSF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1:control/FPWB ETJPERDF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-east-1:control/VEZB RKKXRLKAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/SDHRAOXPCXDR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/WQMVYTCUAPHO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/rol/NXGJV OLKXVTZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::control/rol/YYGKN XYZMUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::control/rol/VJFEC XNNFSLK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::control/rol/CTNRPC SCIMTII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-south-east-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HXBWEHKKWQBM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:control:ap-northeast-3::control/CDAWCXVACTRP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Milan)</td>
<td>arn:aws:control:eu-south-1::control/QLCVBYTAQKNZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Africa (Cape Town)</td>
<td>arn:aws:control:af-south-1::control/OXTCGXKLYMEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle East (Bahrain)</td>
<td>arn:aws:control:me-south-1::control/LGIMTVXMONZD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/HR HMVKZKYDBE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/WF ZWBBMWQINE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/MMQQ TMXFBQCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/BOMF YPZAQNZU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/HR HMVKZKYDBE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
</tbody>
</table>
| CT.KMS.PV.1       | • NIST 800-53 Rev 5 AC-2  
• NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(15)  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-5  
• NIST 800-53 Rev 5 AC-6 | • Enforce least privilege | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/AYTIGCDZPGRX  
• US East (Ohio)  
ar:aws:controltower:us-east-2::control/MDJD0ZYAMSKL |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6(3)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/PVMTUFCQTSCQ</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/TUWDPWLYPABH</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/QOSMISZNLZHS</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/ERXHYQNEVRYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Europe (Ireland)**
  - arn:aws:controltower:eu-west-1::control/KYXCYMGLOSLD
- **Europe (London)**
  - arn:aws:controltower:eu-west-2::control/WFPVSNMFJXD
- **Europe (Stockholm)**
  - arn:aws:controltower:eu-north-1::control/ARHZRQJRNAXN
- **Asia Pacific (Mumbai)**
  - arn:aws:controltower:ap-south-1::control/AXYY0DJFUXQQ
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/CAEURXKPVZIX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/OUZRLATRXPP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3:control/HMSAACTPKBQL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1:control/IOELHUOFDDQK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-1:control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/QCWTS SYVFTOOh</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/PTWPV UKBHYDM</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ WEFPAMOTWMDM</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ VEZVGZFSMURA</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>controltower:eu-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::con</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/HYYS JTSIIYLYW</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/OWHA MAXNYXUK</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/EKXJ CUTTRNRJ</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/SQ RLWUSUKAQA</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/WG GZMHPDCVQQ</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
---|---|---|---

- **Europe (Spain)**
  - arn:aws:controltower:eu-south-2::control/MYID TBEDJJMR

- **Asia Pacific (Hyderabad)**
  - arn:aws:controltower:ap-south-2::control/ZFSN CEDHSQJZ

- **Middle East (UAE)**
  - arn:aws:controltower:me-central-1::control/PX OZEFZHZRKW

- **Asia Pacific (Melbourne)**
  - arn:aws:controltower:ap-southeast-4::control/CHYBYDLZLYCY
# CT.KMS.PV.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.KMS.PV.2</td>
<td>• NIST 800-53 Rev 5 CM-8</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td>• Encrypt data in transit</td>
<td>arn:aws:controltower:us-east-1::control/EDFRUURKIQUB</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/PIMGRCBQFIYG</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.6.1</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/GYCBXHNJQGSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/VUUVMKZDXTGU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/MJQBPFOKAHLQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/NCZDNQRKDYMA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/WUQTVOTHTA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/NSNQFZKPOPGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-west-2:control/IGOEDZWDKOJY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:eu-north-1:control/NIXEMBLQGRBX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/ICJZCOYEOISC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/GMSMKRASUFKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/0YJNXIWXWRIF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/KMWYGHEQNZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1:control/YAWIAYXXDMGM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1:control/PHOKVWOWYWTB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/FX0KBDKDCRRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/DJFGEKHRJHSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/DZQYUVLQCHYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/NCYCKWOG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-central-1::control/FX0KBDKDCRRN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerarn:aws:controltower:me-south-1::control/FNHMUDTXAGBW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)arn:aws:controltower:il-central-1::control/DBTIVTIRFNIY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)arn:aws:controltower:eu-central-2::control/MBFSDIMFTZKH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)arn:aws:controltower:eu-south-2::control/XGWMRWRXQRID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)arn:aws:controltower:ap-south-2::control/</td>
</tr>
</tbody>
</table>

<p>| CT.KMS.PV.2 | 3891 |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.KMS.PV.3         | • NIST 800-53 Rev 5 SC-12  
                     | • PCI DSS version 3.2.1 2.2 | • Enforce least privilege  
                     | • Protect configurations | • US East (N. Virginia)  
<pre><code>                 |                       |                       | arn:aws:controltower:us-east-1::control/XBWZIXUBHKFI |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
</tbody>
</table>
|                    |           |                  |       | arn:aws:controltower/
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-east-1:control/KKRPFQTHVNVF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:controltow er:eu-central-1::control/KKGZONAWPTZQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:controltow er:eu-west-1::control/ISSVLAHPUKY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltow er:eu-west-2::control/KXDLNZNODJLD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltow er:eu-north-1::control/NMWKOFNNPCAF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • Asia Pacific (Mumbai)  
|                    |           |                  |  arn:aws:controltower:ap-south-1::control/VIYXFDTJFT0V |
|                    |           |                  | • Asia Pacific (Seoul)  
|                    |           |                  |  arn:aws:controltower:ap-northeast-2::control/HBYZHPN0KDQ |
|                    |           |                  | • Asia Pacific (Tokyo)  
|                    |           |                  |  arn:aws:controltower:ap-northeast-1::control/CXRZGJFNKH |
|                    |           |                  | • Europe (Paris)  
|                    |           |                  |  arn:aws:controltower:eu-west-3::control/NTDOXVXROYNA |
|                    |           |                  | • South America (São Paulo)  
<p>|                    |           |                  |  arn:aws:controltower:ap-south-2::control/KJYXVXROYNA |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowert:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-west t-1::control/WRTSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XIRYBDO</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west</td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>t-1::control/ZK0CP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CBEQKOW</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-east t-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LLAZY PBBZYUB</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:</td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>:control/PMNICKKUUEAE</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td>(Osaka)</td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control/SRLJJFKOCPIJZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-1:control/UXZI DZHPWQQC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:controltower:af-south-1:control/FAXV INUGMYKC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (Bahrain) arn:aws:controltower:me-south-1:control/SNHK SKSCJ0BM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Israel (Tel Aviv) arn:aws:controltower:il-central-1:control/NL BYTRXZLVBJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/UYXYOWEIVP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/JAKFHFSUCQJN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/REDXLFTOGWE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/OCCDVOTWDUOI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.KMS.PV.4        | • NIST 800-53 Rev 5 SC-12(2) | • Encrypt data at rest  
• Encrypt data in transit | • US East (N. Virginia)  
ar:n:aws:controltower:us-east-1::control/EBMKZKSDVMWL  
• US East (Ohio)  
ar:n:aws:controltower:us-east-2::control/ZZHXODITMASY  
• US West (Oregon)  
ar:n:aws:controltower:us-west-2::control/GAWXDJGYAKFT |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/VYDRIMVKDWQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/DRLHYGNQFBCK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/XCURERQKNGZA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/ZOVQFWYWTHK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1:control/MTOAK BAUUKKZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower er:eu-wes t-2:control/MTOAK BLBBP TZAIQJX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower er:eu-nor th-1:control/YFYX MUCFEQJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower er:ap-south-1:control/XVUJ XMNUJKRH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower er:ap-northeast-2:control/ODIIBHMXITOT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/IODDJWMRKXYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/ZBASIZLEUIXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/EGLYADUUTVIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/IUWYPQTCMVJX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/IODDJWMRKXYZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:ap-eas t-1:control/QYFKE OYNZBIW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TBECJBYQNBXC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JQSIEDUWSFYP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/EYTE RDXVHXQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/OISQ VDWKRRRCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/MVKAEZVXTTBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/LDCDJUSVTKB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/JANDQXGQTNQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
</tbody>
</table>
### CT.KMS.PV.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-east::controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-east::controltow:US East</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control:US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control:US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control:Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control:Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east::</td>
</tr>
</tbody>
</table>

- **US East (Ohio)**
  - arn:aws:controltower:us-east::control/FMPHL:
  - arn:aws:controltower:us-east::control/YTRCM:

- **US West (Oregon)**
  - arn:aws:controltower:us-west::control/FMPHL:
  - arn:aws:controltower:us-west::control/YTRCM:

- **Canada (Central)**
  - arn:aws:controltower:ca-central-1::control/HI:
  - arn:aws:controltower:ca-central-1::control/YTRCM:

- **Asia Pacific (Sydney)**
  - arn:aws:controltower:ap-southeast-2::control/HI:
  - arn:aws:controltower:ap-southeast-2::control/YTRCM:
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LRZPJJXMTXYJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/NJSILJCBKKDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/ETXNAUTWPEDI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/LCGFHZWLQHQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-2:control/CZEKUUDDWAOC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/UADDUJMWUMFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/BIVKYUJITTVXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/AVZBAPUJNOPY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/NATXYLWHLDDY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td>t-3::control framework:KDMSL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NRTXCVE</td>
</tr>
<tr>
<td>• South America</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td>t-1::control framework:UOVVT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TUXXEQE</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>t-1::control framework:WAPKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UOSFZCN</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-eas</td>
<td></td>
<td>t-1::control framework:LARQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QCTXLKN</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/OMHRJDQOQRNT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/AIURGKGHIPSD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/FAGTWHNUTYVVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/RNVMMPNXUUHE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/TCCEMCESVPGV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:il-central-1::control/OQBQQOZGWDSN</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-central-2::control/XRNJTYFLZJTM</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-south-2::control/PHQDHCSBPSUO</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-south-2::control/DCTJVTIEGIZC</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:me-central</code></td>
</tr>
</tbody>
</table>
## CT.KMS.PV.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.KMS.PV.6            | • NIST 800-53 Rev 5 SA-9(6) | • Encrypt data at rest  
• Encrypt data in transit | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/QRQARDFSDXIL  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/LWZCGNXNQEI |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong> arn:aws:controltower:us-west-2:control/KRHABHPITGXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1:control/DFENXUYBYML</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2:control/XDCHZDYYYYBWQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1:control/XPQJDEJNQREAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower</td>
</tr>
</tbody>
</table>

---

CT.KMS.PV.6 3913
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu-central-1::control/AX VNMAYTCTON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower eu-west-1::control/TQQKE WSBWODP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower eu-west-2::control/XQERZWTPUQEC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower eu-northern-1::control/ONPV YLTFRZH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower ap-southeast-1::control/FBTM EVIZDZXV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/KXELCKQIWMYL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/HKDZIXZVNQIQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/PHUVLDSPBUNVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/BWONYXHSENHW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:north-america-west-2:control/PXVMS5QG5Q8K</td>
</tr>
</tbody>
</table>

CT.KMS.PV.6
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-wes:cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/GSSEW:CGWPIUKS</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-eas:cont</td>
<td></td>
<td>rol/VQNID:IRZNPX0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-sou:cont</td>
<td></td>
<td>theasteast-3:control/XQKLXTJSCQKU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-nor:cont</td>
<td></td>
<td>theasteast-3:control/GLKJUHBWIGYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-sou:cont</td>
<td></td>
<td>th-1:control/CT.KMS.PV.6:3916</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/ZMAG GOBXQDLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/IOAEQLAJYOJX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1:control/NIMLBTNZNZRTN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1:control/ZEAWJURGDKTF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2:control/IWAMOSCHKKOH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/KVSWABXWGVDW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/JURDOMCLQETM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/LODSFBKGRMCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/CKHYAGZGEYNQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.LAMBDA.PR.2     | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20)  
• NIST 800-53 Rev 5 SC-7(21)  
• NIST 800-53 Rev 5 SC-7(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-7(9) | • Limit network access |  
• US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/GFCPW DHPFTHD  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/COUMHGZRQFCF  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/VJIRQWYHYDXV  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/FPBXFQPQWW |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/BAGTSQZJEERJ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/LDXUXPGTHFTM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/HLIQPFVKCLVE</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/MJBVVBICLFWM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/MKFON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GAVAWNY</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:c ontroltower</td>
<td></td>
<td>arn:aws:c ontroltower:eu-nor th-1::control/UILF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BLLIQABG</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:c ontroltower</td>
<td></td>
<td>arn:aws:c ontroltower:ap-south-1::control/YMYW ZTVHNPMQ</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:c ontroltower</td>
<td></td>
<td>arn:aws:c ontroltower:ap-northeast-2::control-2:LNBOCFPQISPJ</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:c ontroltower</td>
<td></td>
<td>arn:aws:c ontroltower:ap-northeast-1:</td>
</tr>
</tbody>
</table>

CT.LAMBDA.PR.2  3921
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PUXILAKLQQYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/IRVLX VEJRTUD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/MKVUC RWVYEWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/YSIDNPMMYOON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/JVMXS VKDKFOU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/UXZDCQJYOSNC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/VYEPJCYALYAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/BORKYWUAXJKK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/UIBDVHMMVAUF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/BORKYWUAXJKK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/RMYYTDRBRHYM</td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td></td>
<td></td>
<td>arn:aws:ontroltower:il-central-1:control/XJMPXBDGZSYCY</td>
</tr>
<tr>
<td>• <strong>Europe (Zurich)</strong></td>
<td></td>
<td></td>
<td>arn:aws:ontroltower:eu-central-2:control/XLAKVGWNSZVU</td>
</tr>
<tr>
<td>• <strong>Europe (Spain)</strong></td>
<td></td>
<td></td>
<td>arn:aws:ontroltower:eu-south-2:control/LPJI PJVEVHOK</td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
<td></td>
<td></td>
<td>arn:aws:ontroltower:ap-south-2:control/</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---
| CT.LAMBDA.PR.3 | NIST 800-53 Rev 5 AC-21 | Limit network access | US East (N. Virginia) arn:aws:controltower:us-east-1::control/BVIJMEJXIWAP
<p>| CT.LAMBDA.PR.3 | NIST 800-53 Rev 5 AC-3 | | |
| CT.LAMBDA.PR.3 | NIST 800-53 Rev 5 AC-3(7) | | |
| CT.LAMBDA.PR.3 | NIST 800-53 Rev 5 AC-4 | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/HEQUKYBHEVKM</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/UZZBQASAXGUJ</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/LBWGXPFUJB</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/ORTKUZLIVKOW</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:asia-pacific-singapore::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/ZHVUGGWVVIBX</td>
</tr>
<tr>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/BUKOZUOMUU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/BVYPOTAFIV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/HBVCDXMWQXG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/AQDRYJFPHMSW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)phin:arn:aws:controltower:ap-south-1::control/OYLHPRXKQADB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)phin:arn:aws:controltower:ap-northeast-2::control/WHXWCLBQBWBC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)phin:arn:aws:controltower:ap-northeast-1::control/WOQSTHULHXBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)phin:arn:aws:controltower:eu-west-3::control/IJVOXESXUCQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)phin:arn:aws:controltower:ap-south-1::control/OYLHPRXKQADB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-eas:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:sa-eas:controltow:ANRAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FWUPJNN</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:controltow:GPNJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IYPIURY</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas:controltow:PZWTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ELYIZTE</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou:control:CLTIPWNNUWFWU</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3: :control/ MWERAVUHAGVJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1:control/OUQC UUFMLXQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1:control/QRUB HQKOLDE0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1:control/ZQNE WWQNH0CA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1:control/XV IHEYZMIUPD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/WKGMNYMTIOUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/YVGINZGKBDRB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/OUAKOUKARUHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/MSMKHOTQFYUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.LAMBDA.PR.4     | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20) | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/XOXGPFEWMXYQ  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/RNARZBOWKHIP  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/PAVLGUMCWQJJ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/PM HQAFGLASNE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/DFIQWZHSSNZY</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/JRQNMMQUXFVX</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/PA CONHNZQYAF</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/MYNQPUTAPPHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower er:eu-wes t-2::control/QLUVOLECEOBI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower er:eu-north-1::control/IIPL OXPQWIWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower er:ap-southeast-1::control/BZXKMLBAUXJY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower er:ap-northeast-2::control/JFSZBXDKTWKB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/UKOEKFDBEQKA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/ULIQOLJJWCOSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/QFUSEDABJFK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/OKKNXSQREWEEO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c5935</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/GMZAGJHNXSKP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/ZGTSAFJLTNER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/PJENJYVYITLK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-1:control/YYQIXBRIPJHJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:controltower:af-south-1:control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/JREQ FLRKPLTJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1::control/ZRAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MNDXAWNY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:il-central-1::control/UM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CFTGGINALH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-2::control/WW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DZVOA0VTRP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-2::control/DTWY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WLVUTWGK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.LAMBDA.PR.5</td>
<td></td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/KHFBN SFLXLFU</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QZPPEVMDCAYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/VWPMCLITUBNJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/MTHJNNVDCD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/MDQQQEWXASLO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/YLQGBZVFJHHF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/SYNF EUHOJIFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/PCXK SQQRFOJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/YLLDFQWUTMOQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/BEAYVEJMKAZH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/role/GIJHA EAJFHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/role/DNBAT CDTCWHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/role/OFUJN IZKUUTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/role/TOUJW QCHMRTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PMHEGULRZVPO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/PMHEGULRZVPO</td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td></td>
<td></td>
<td>:control/RQSBSQZIJMEB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/ZLFYHFKXATVG</td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td></td>
<td></td>
<td>:control/UDPWFKXATVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/UDPWFKXATVG</td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>:control/COSBEYHKJWRD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/COSBEYHKJWRD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/WUDGXVLZMCM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/SLWUJIJATDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/REZQWRYAQMTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/PECEAWGHZUHR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.LAMBDA.PR.6     | • NIST 800-53 Rev 5 AC-21  
                     • NIST 800-53 Rev 5 AC-3  
                     • NIST 800-53 Rev 5 AC-3(7)  
                     • NIST 800-53 Rev 5 AC-4  
                     • NIST 800-53 Rev 5 AC-4(21)  
                     • NIST 800-53 Rev 5 AC-6  
                     • NIST 800-53 Rev 5 SC-7 | • Limit network access | • US East (N. Virginia)  
                        arn:aws:controltower:us-east-1::control/UZMMJBJQMQZK  
                        • US East (Ohio)  
                        arn:aws:controltower:us-east-2::control/KOWWB EWWDHEQ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1:control/DYTGMGAPPGV</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/DOXCJUNEAQCI</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/VITKCWEDWFWW</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-west-1:control/CT.LAMBDA.PR.6</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• PCI DSS version 3.2.1 1.3</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower:eu-west-1::control/QXXQDGAQAXXX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-west-2::control/JZTICQHAKTAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-north-1::control/CHNMHTENMIPB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/XORGKKZRAMGT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/NFIDIZDUGHTE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/KGDGFDZTQXAD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/BGUYYODQXMJF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/NECDSRJUJGJP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:ap-southwest-1:control/RJUJGJP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-west-1::control/OLJVZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HFTBBQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-east-1::control/DMNSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NCZNIVC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-3::control/LVDYJRBNZIDJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-north-3::control/QIZTBZNUZBKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:europe-south-1::control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/QAMS LUZWJHTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/DEWA WZECDNWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/KHSG XAHNQPIF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/FS OFPVGUVXHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/WI IRWSRTEYBB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/AZADVQDRVPAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/HAUILLIYSYSQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/IFTPIUVRSPPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/KLZCJQZASASQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.LAMBDA.PV.1     | • NIST 800-53 Rev 5 AC-2(1)  
|                    | • NIST 800-53 Rev 5 AC-3    
|                    | • NIST 800-53 Rev 5 AC-3(15) 
|                    | • NIST 800-53 Rev 5 AC-3(7)  
|                    | • NIST 800-53 Rev 5 AC-6     
|                    | • PCI DSS version 3.2.1 7.1.1
|                    | • PCI DSS version 3.2.1 7.2.1
|                    | • PCI DSS version 3.2.1 7.2.2
|                    | • Enforce least privilege   |
|                    | • US East (N. Virginia)  
|                    |       arn:aws:controltower:us-east-1::control/DHHUNDPLAEDH |
|                    | • US East (Ohio)           
|                    |       arn:aws:controltower:us-east-2::control/AEVUGRANQIIR |
|                    | • US West (Oregon)         
|                    |       arn:aws:controltower:us-west-2::control/VBCTZJHNUNDG |
|                    | • Canada (Central)         
<p>|                    |       arn:aws:controltower:ca-central-1::control/NZLDFSAFRBWL |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/LLYURTIBPPYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/GQHTNZUZUNGF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/FFTEZONPHDUJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/BRGLCIPEZUAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/XNQVY LKQAQHJ</td>
</tr>
<tr>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/PXBK WTAFSWHJ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/BFBV YIEXHBJM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/WCLDUBRECNBQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/WCLDUBRECNBQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BMICNUYEFUYP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong>&lt;br&gt;arn:aws:controltower:eu-west-3::control/SIUALBLGDTMO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong>&lt;br&gt;arn:aws:controltower:sa-east-1::control/CHPCWCOGYSCZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong>&lt;br&gt;arn:aws:controltower:us-west-1::control/UQSFXDRYFMHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong>&lt;br&gt;arn:aws:controltower:ap-east-1::control/SPMKGJCCJOPN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/QZPCHXXRSNQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/WKRQCRPWLTIQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/HZNF/IYMPMBMR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/PSYZ/RCXFCVTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/REBD_TZYVQTHS</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/KC_CLIDVTAYFJ</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/EZ_DDUOQUXMKK</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/VPCH_UDLKOEXZ</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control</td>
</tr>
</tbody>
</table>

**Control objective:**

- **Framework:**
- **Control identifier:**
- **Control API identifiers, by Region:**

**Control objective:**

- **Framework:**
- **Control identifier:**
- **Control API identifiers, by Region:**
## CT.LAMBDA.PV.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.LAMBDA.PV.2     |           | • Enforce least privilege | • **US East (N. Virginia)**  
|                    |           |                   | `arn:aws:controltower:us-east-1::control/TEVRXVDQJPB` |
|                    |           |                   | • **Middle East (UAE)**  
|                    |           |                   | `arn:aws:controltower:me-central-1::control/KGMJEROMKE` |
|                    |           |                   | • **Asia Pacific (Melbourne)**  
|                    |           |                   | `arn:aws:controltower:ap-southeast-4::control/TEDAVTDQJPB` |

- PCI DSS version 3.2.1 2.2
- PCI DSS version 3.2.1 7.1.1
- PCI DSS version 3.2.1 7.1.2
- PCI DSS version 3.2.1 7.2.1
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
|                    |           | • PCI DSS version 3.2.1 7.2.2 | • **US East (Ohio)**
|                    |           |                   | arn:aws:controltower:us-east-2::control/KFAOIVPALKDH |
|                    |           |                   | • **US West (Oregon)**
|                    |           |                   | arn:aws:controltower:us-west-2::control/JGPQDZGKSFMU |
|                    |           |                   | • **Canada (Central)**
|                    |           |                   | arn:aws:controltower:ca-central-1::control/AMWDGRIIEIR |
|                    |           |                   | • **Asia Pacific (Sydney)**
|                    |           |                   | arn:aws:controltower:ap-southeast-2::control/DLCEGPGZVKVR |
|                    |           |                   | • **Asia Pacific (Singapore)**
|                    |           |                   | arn:aws:controltower/
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/\n</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> \n</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> \n</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> \n</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> \n</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/GVZQJUVYWDCB</td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/QZRXXZBUCTPUU</td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/CKUNXXZIGPCO</td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/MJDNUHXZAXBB</td>
</tr>
<tr>
<td>South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/GVZQJUVYWDCB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:sa-east-1:control/BEKVJQT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:us-west-1:control/FEMIYYGGMEFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:ap-east-1:control/DMQNSKCJEMGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:ap-southeast-3:control/YBOGPLNVDMJY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:ap-northeast-1:control/YBOGPLNVDMJY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>theeast-3:</td>
<td></td>
<td></td>
<td>control/</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>NQDLCWOTTWYE</td>
</tr>
<tr>
<td>• <strong>Europe (Milan)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/XKHR</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>NISMIPEC</td>
</tr>
<tr>
<td>• <strong>Africa (Cape Town)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/OESC</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>SLVHVSLE</td>
</tr>
<tr>
<td>• <strong>Middle East (Bahrain)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/WWCF</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>PCARGEZV</td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/RD</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>HGXRNYYWRGS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/ETIFLDQRNDGM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/PTQGPHVIZYL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/TJFQZICEGUH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central-1::control/LHDBIAJHZPLA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
</tbody>
</table>

CT.LAMBDA.PV.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.MQ.PR.1</td>
<td>• NIST 800-53 Rev 5 CP-10&lt;br&gt;• NIST 800-53 Rev 5 CP-6(2)&lt;br&gt;• NIST 800-53 Rev 5 SC-36&lt;br&gt;• NIST 800-53 Rev 5 SC-5(2)&lt;br&gt;• NIST 800-53 Rev 5 SI-13(5)</td>
<td>• Improve resiliency&lt;br&gt;• Improve availability</td>
<td>• US East (N. Virginia)&lt;br&gt;arn:aws:controltower:us-east-1::control/MQQZTEMPUGWI&lt;br&gt;• US East (Ohio)&lt;br&gt;arn:aws:controltower:us-east-2::control/ZTCMAABBQGAV&lt;br&gt;• US West (Oregon)&lt;br&gt;arn:aws:controltower:us-west-2::control/ZFWMKYOIAGSE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/SF QDJVTLHWNL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/FFGVHTGZXPEZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/YSERPGVIVTQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/EC CIYSNDAQTE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/KJXYK UOPPURV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong>&lt;br&gt;arn:aws:controltower:eu-wes t-2::control/LZZVH LDPXFPK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong>&lt;br&gt;arn:aws:controltower:eu-nor th-1::control/AEBZ TYVZDNRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong>&lt;br&gt;arn:aws:controltower:ap-south-1::control/KBSA GXSAADUW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-2::control/RJIZKYGOAOPQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| • Asia Pacific (Tokyo)
  arn:aws:controltower:ap-northeast-1::control/UCILLEAJEUIJ |
| • Europe (Paris)
  arn:aws:controltower:eu-west-3::control/ZHDMQVITAJUY |
| • South America (São Paulo)
  arn:aws:controltower:sa-east-1::control/CTBROZHZFSHH |
| • US West (N. California)
  arn:aws:controltower:us-west-1::control/PTWZVCAADPQK |
<p>| • Asia Pacific (Hong Kong) | arn:aws:controltower:ap-northeast-1::control/UCILLEAJEUIJ |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-eas:control/VTBBZ:HEVNVROI</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/IXDXNQGKEAPR</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/UYXVFZKSTUBK</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/HBCOAJEAFXDU</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/WSJW KPYQTNTNU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/TBBQFXAWASFY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/DTYFZYAVIEEEX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/QNZQMPOVQBVF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/JQCZITBAJQHZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.MQ.PR.2</td>
<td>NIST 800-53 Rev 5 CP-10</td>
<td>Improve resiliency, Improve availability</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-2::control/CT.MQ.PR.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/VHAFXJTXTQMY</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/SBNYX MCPJYYF</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/OMCJZ WMYHEVZ</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/LU ZXHFYGBRHQ</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/ SWVPVFANFTMW</td>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/</td>
<td></td>
</tr>
<tr>
<td>:control/ UXKPREDRSLDK</td>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/XMKXPSLJXIZG</td>
<td></td>
</tr>
<tr>
<td>:control/ ICKDUSX</td>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/JYTBUICKDUSX</td>
<td></td>
</tr>
<tr>
<td>:control/ FQBEDBN</td>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/AEXPYFQBEDBN</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-1:control/SMHUJLYTMHMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1:control/OYDKTPAMRYBE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/QJHCRL0LAAACU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/CKSKRIHJFKXX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-----------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/role/WBVRE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AMAQFHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/role/CRLRJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HOTNOHP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/role/BFHEA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UBRZHYC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/role/DXJDW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WZOTRYO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/ NHVOAEYKAXPI</td>
<td>-</td>
<td>-</td>
<td>Asia Pacific (Osaka)</td>
</tr>
<tr>
<td>:control/ CXVLQMRMZNCA</td>
<td>-</td>
<td>-</td>
<td>Europe (Milan)</td>
</tr>
<tr>
<td>:control/ KJEU GEKUNLZZ</td>
<td>-</td>
<td>-</td>
<td>Africa (Cape Town)</td>
</tr>
<tr>
<td>:control/ LAHF JWQEUILJ</td>
<td>-</td>
<td>-</td>
<td>Middle East (Bahrain)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/MD LSDLWZVZRU</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/VH BKUESUPAPS</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AUWZ OWMMNLBO</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/AVWB MTCGEFMZ</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.MSK.PR.1</td>
<td></td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
</tbody>
</table>

- **NIST 800-53 Rev 5 AC-4**
- **NIST 800-53 Rev 5 SC-13**
- **NIST 800-53 Rev 5 SC-23**
- **NIST 800-53 Rev 5 SC-23(3)**
- **NIST 800-53 Rev 5 SC-7(4)**
- **NIST 800-53 Rev 5 SC-8**
- **NIST 800-53 Rev 5 SC-8(1)**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 SC-8(2)</td>
<td>• PCI DSS version 3.2.1 2.3</td>
<td>• PCI DSS version 3.2.1 4.1</td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/MVIJ0ZVGIEA0</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/MNIRMHULKCQS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/BNIVUZKPMVQN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/RDGYYRDGSFHX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/NR GTNOBYFTGX</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/UWBXK PTYRJSZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-1::control/KVVDE ADXQKNC</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/XOXT XFPXMEA</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/BTWM DHYZHDAI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/AGCJFRAOJAQH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/UQTBILPKYTBY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/IUSVKEKARNAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/YUFFNEEGMKJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/YCEFQMOLVK</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/LEYMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RQCEHWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/VJKSJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UWKZGRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WCDCFFYFYYMDE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GRETECLSQPSI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::con</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/HUKY WXEGZLOQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1:control/BAHW MNPELSAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1:control/LPZM RIAFLVYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1:control/XV CSKWQARZXH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2:control/KI LOKNWJSYZQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/TJYPFSDYTZKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/TWCRBSOGZPFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/RDNFSPNYDEYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/0ULBRFIHYTNN</td>
</tr>
</tbody>
</table>
## CT.MSK.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.MSK.PR.2        | • NIST 800-53 Rev 5 AC-21  
                     • NIST 800-53 Rev 5 AC-3  
                     • NIST 800-53 Rev 5 AC-3(7)  
                     • NIST 800-53 Rev 5 AC-4  
                     • NIST 800-53 Rev 5 AC-4(21)  
                     • NIST 800-53 Rev 5 AC-6  
                     • NIST 800-53 Rev 5 SC-7  
                     • NIST 800-53 Rev 5 SC-7(11)  
                     • NIST 800-53 Rev 5 SC-7(16)  
                     • NIST 800-53 Rev 5 SC-7(20)  
                     • NIST 800-53 Rev 5 SC-7(21)  
                     • NIST 800-53 Rev 5 SC-7(3)  
                     • NIST 800-53 Rev 5 SC-7(4)  
                     • NIST 800-53 Rev 5 SC-7(9) | • Limit network access |  
|                    | US East (N. Virginia)  
                     arn:aws:controltower:us-east-1::control/PZUJVIDWDHOM  
|                    | US East (Ohio)  
                     arn:aws:controltower:us-east-2::control/XVUHN EQBVNVW | |  
|                    | US West (Oregon)  
                     arn:aws:controltower:us-west-2::control/LRMSV VUASUPE | |  
|                    | Canada (Central)  
                     arn:aws:controltower:ca-central-1::control/MU NQH0JYUZAJ | |  
<p>|</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/EHTOBZTBSZXK</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/KDUGEVWDHRHO</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/SKRZGWYWSIPS</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/TACKPJYYNVWA</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | er:eu-west-2:control/KSSKN
|                    |           |                  | NHQHEXB
| • Europe (Stockholm) | arn:aws:controltower:eu-northeast-1:control/XAWV
|                    |           |                  | JZRSTADIX
<p>| • Asia Pacific (Mumbai) | arn:aws:controltower:ap-southeast-1:control/KGTZSYXABUIQ |
| • Asia Pacific (Seoul) | arn:aws:controltower:ap-northeast-2:control/KGTZSYXABUIQ |
| • Asia Pacific (Tokyo) | arn:aws:controltower:ap-northeast-2:control/KGTZSYXABUIQ |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PQSCRPWAIGSI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/LQDETGYRPNBE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/MSCNWGCTYWAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/MBUHFHUIBMAP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/WNVHOFCOTTRR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3::control/OJFGSQYYLTTD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3::control/GOPUMVIQUABN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1::control/SWIAIGYRDQCA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/YXNJQQTVFNIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/0JFGSQYYLTTD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowern:aws:controltower:me-south-1::control/QKQNQZXTIKKH</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Israel (Tel Aviv)**
|                    |           |                  | arn:aws:controltower:il-central-1::control/CDZVSZMWQBHP |
|                    |           |                  | • **Europe (Zurich)**
|                    |           |                  | arn:aws:controltower:eu-central-2::control/SQBOPTGLLENJ |
|                    |           |                  | • **Europe (Spain)**
|                    |           |                  | arn:aws:controltower:eu-south-2::control/LGRHBZUSXUXO |
|                    |           |                  | • Asia Pacific (Hyderabad)**
|                    |           |                  | arn:aws:controltower:ap-south-2::control/LGRHZBZUSXUXO |
### CT.MULTISERVICE.PV.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.MULTISERVICE.PV.1 | • NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7 | • Protect configurations | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/JBVFPBYGPJM |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1:control/CUMNVXPZBGRY</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/TKFQGX0BPOPS</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-east-1: control/LSENANGXZUZZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1:control/TXGJPWIF0IGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1:control/LGTPYJYCCRAP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltower:eu-west-2:control/PFPYSCVEVJTP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/FEJANOLACBIZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/OLQB AKMRJYXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/BLXDPWEXTKRA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/MPJQGLAIIZEM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/GGAWFNTSDAEQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/OLQB AKMRJYXE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::cont rol/XTXHS ACQYKWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong> arn:aws:c ontroltow er:us-wes t-1::cont rol/KXUQF QQTDTUTR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong> arn:aws:c ontroltow er:ap-eas t-1::cont rol/CWTMV EHXOTNW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong> arn:aws:c ontroltow er:ap-sou theast-3: :control/ MYZWLU@JMTLG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong> arn:aws:c ontroltow er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: :control/NSDDZGMMKNER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1::control/TFIGQZAEMVUX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/VXHNRWGNCBCI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/UOJZHKRFGHPV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/TNYPPLHKBYQN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/XY EOCXGQGPIL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/DUBE SZEORFLO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/QOUY ADIVTWNB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/FY HDZNZGYHGG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
</tbody>
</table>
## CT.NEPTUNE.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.NEPTUNE.PR.1    | • NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(15)  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-6  
• PCI DSS version 3.2.1 7.1.1  
• PCI DSS version 3.2.1 7.2.1  
• PCI DSS version 3.2.1 7.2.2  
• PCI DSS version 3.2.1 8.7 | • Enforce least privilege  
• Use strong authentication | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/VVYTTDIRYZIC  
• US East (Ohio)  
ar:aws:controltower:us-east-2::control/HHYQQNQRWPTR  
• US West (Oregon)  
ar:aws:controltower:us-west-2::control/OIAIWVBPDRZL |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/IMAPSYUKKCBZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/ZBNZCKKEFZPZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/UKYLCMUZFQMF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/TOIBCMWTQULC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>er:eu-wes</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/QBMPF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YNYANKO</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:c</td>
<td></td>
<td><strong>er:eu-wes</strong></td>
</tr>
<tr>
<td></td>
<td>controltow</td>
<td></td>
<td>t-2::control/TQGVM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TLQCLVJ</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:c</td>
<td></td>
<td><strong>er:eu-nor</strong></td>
</tr>
<tr>
<td></td>
<td>controltow</td>
<td></td>
<td>th-1::control/JCSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AIJVQJPN</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td>arn:aws:c</td>
<td></td>
<td><strong>er:ap-sou</strong></td>
</tr>
<tr>
<td>(Mumbai)</td>
<td>controltow</td>
<td></td>
<td>th-1::control/HKUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EITUOURQ</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td>arn:aws:c</td>
<td></td>
<td><strong>er:ap-nor</strong></td>
</tr>
<tr>
<td>(Seoul)</td>
<td>controltow</td>
<td></td>
<td>theast-2::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FIHJPXZCWDUV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-------------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • Asia Pacific (Tokyo)  
|                    |           |                  |  
ar:aws:controltower:ap-northeast-1:control/WMPRSCMJEQPR |
|                    |           |                  | • Europe (Paris)  
|                    |           |                  |  
ar:aws:controltower:eu-west-3:control/XPUCIKNRWZQY |
|                    |           |                  | • South America (São Paulo)  
|                    |           |                  |  
ar:aws:controltower:sa-east-1:control/BIMAERWOCWOC |
|                    |           |                  | • US West (N. California)  
|                    |           |                  |  
ar:aws:controltower:us-west-1:control/AGSWUBESEOXW |
|                    |           |                  | • Asia Pacific (Hong Kong)  
|                    |           |                  |  
ar:aws:controltower:ap-northeast-1:control/WMPRSCMJEQPR |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower::ap-east-1::control/BQEHCQGVUZAL</td>
</tr>
</tbody>
</table>
|                    |           |                   | • Asia Pacific (Jakarta)  
|                    |           |                   | arn:aws:controltower::ap-southeast-3::control/ZCYILJXNYJPS |
|                    |           |                   | • Asia Pacific (Osaka)  
|                    |           |                   | arn:aws:controltower::ap-northeast-3::control/VRVLPEXHUHRR |
|                    |           |                   | • Europe (Milan)  
|                    |           |                   | arn:aws:controltower::eu-southeast-1::control/VSKCNZBJMSDL |
|                    |           |                   | • Africa (Cape Town)  
<p>|                    |           |                   | arn:aws:controltower::af-south-1::control/CT.NEPTUNE.PR.1 |
|                    |           |                   | 4002 |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/ERYI KQHLG0SR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East</strong> (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JAEB JWGZUZIK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:il-central-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/XN EQNATMDCOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/XY VGUQMPBHLO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/EDCF DZFLS LTE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>CT.NEPTUNE.PR.2</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Improve availability</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Protect configurations</td>
<td>arn:aws:controltower:us-east-2::control/EMRQQNEEYXAN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CM-2</td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td>ontroltower:us-east-1::control/AULKJOKXSVDI</td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CM-2(2)</td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CM-3</td>
<td>• NIST 800-53 Rev 5 CM-3</td>
<td>US East (Ohio) arn:aws:controltower:us-east-2::control/ZHXCJVWNCCQ</td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 2.2</td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td>Canada (Central) arn:aws:controltower:ca-central-1::control/VFQOGQVHFGGE</td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>US East (Ohio) arn:aws:controltower:us-east-2::control/ZHXCJVWNCCQ</td>
<td>Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EPHJMXQEQYSVCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:</strong> aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ap-southeast-1:</strong> control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>MKEKOWUXVHEC</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:</strong> aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>eu-central-1:</strong> control/BF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>OILRCAVCCO</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:</strong> aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>eu-west-1:</strong> control/WXRTD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>NJWPQOXX</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:</strong> aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>eu-west-2:</strong> control/OCSPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>MPOABNK</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/LZEH PWYXYBNV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/USKY FIQHPSRG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/WBFRUHNLDQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/NACPTUROMGYT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/ILBYO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EBHNJPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/VHPBM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TMAGERS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/YSOAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XOUVDMZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/MNXLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FLERVOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ MQCMSSWZMSNP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/RBZJYTJVEHNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/CPEMP PXZLTSTB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/NCHI LLHMRKVW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/CITQ XS0CSZKP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/TKXJKFWHUHHJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/JPOGMCXQRQDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/JHJZOWQKSKQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/ALDJGKDLKYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/CT.NEPTUNE.PR.24010</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.NEPTUNE.PR.3</td>
<td></td>
<td>Encrypt data at rest</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/ZVGXWKMLNOCT</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (N. Virginia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| - PCI DSS version 3.2.1 3.4 | | | • **US West (Oregon)**
  arn:aws:controltower:us-west-2:control/CKBZYEFYGFQG |
| - PCI DSS version 3.2.1 8.2.1 | | | • **Canada (Central)**
  arn:aws:controltower:ca-central-1:control/BO NSNYFHTQYM |
| | | | • **Asia Pacific (Sydney)**
  arn:aws:controltower:ap-southeast-2:control/GQZRECITMLZC |
| | | | • **Asia Pacific (Singapore)**
  arn:aws:controltower:ap-southeast-1:control/HXRJRJSRDQBB |
| | | | • **Europe (Frankfurt)**
  arn:aws:controltower |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-central-1::control/GXXVHTLKFUL0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/GFECITKOJIDB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/VRONLZOJVXSF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/RGGBNARHYLPC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/DSCGRLDBSTVB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/MPXCNSRKMDRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/LPFIVZUR00JJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/EEFOBFRQOZLO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/PHRBYWIDRHTW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:ap-northeast-2::control/MPXCNSRKMDRF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:us-wes t-1::cont rol/CZOYF PWHMMZD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltow er:ap-eas t-1::cont rol/THFQX QZMWHWZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltow er:ap-southeast-3: :control/ WUVFSNJYPXZY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltow er:ap-northeast-3: :control/ MEYIGJFZNYVR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:c ontroltow er:eu-south-1: :control/</td>
</tr>
</tbody>
</table>

CT.NEPTUNE.PR.3
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/VELC DMBUYSDH</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/MAJYUEOFRPCV</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/POYFLOMZJKGT</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/TGFIVIAQMYYH</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/DA THNOLBMKAS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/UMJFXSSLQXOZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/AUXNHIKWYWOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/XVYPSSGWQEMK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower:ap-southeast-4::control/NXKULGHRFXPV</td>
</tr>
</tbody>
</table>
## CT.NEPTUNE.PR.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.NEPTUNE.PR.4    | • NIST 800-53 Rev 5 AC-2(4)  
|                    | • NIST 800-53 Rev 5 AC-4(26)  
|                    | • NIST 800-53 Rev 5 AC-6(9)  
|                    | • NIST 800-53 Rev 5 AU-10  
|                    | • NIST 800-53 Rev 5 AU-12  
|                    | • NIST 800-53 Rev 5 AU-2  
|                    | • NIST 800-53 Rev 5 AU-3  
|                    | • NIST 800-53 Rev 5 AU-6(1)  
|                    | • NIST 800-53 Rev 5 AU-6(3)  
|                    | • NIST 800-53 Rev 5 AU-6(4)  
|                    | • NIST 800-53 Rev 5 AU-6(5)  
|                    | • NIST 800-53 Rev 5 AU-7(1)  
|                    | • NIST 800-53 Rev 5 AU-9(7)  
|                    | • NIST 800-53 Rev 5 CA-7  |
|                    | • Establish logging and monitoring |
|                    | • US East (N. Virginia)  
|                    |arn:aws:controltower:us-east-1:control/ONFZFWFIMSQN  
|                    | • US East (Ohio)  
|                    |arn:aws:controltower:us-east-2:control/JDYGXWIKJYDZ  
|                    | • US West (Oregon)  
|                    |arn:aws:controltower:us-west-2:control/JSFACLSPAAKM  
|                    | • Canada (Central)  
<p>|                    |arn:aws:controltower:ca-central-1:control/OBNEBUDNRQRH |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/ICNUQORDNDTA</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/WNMAYPTTNDEJ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(5)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/ZLNXPZLYQOKG</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/XWJIDBFMFSIU</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/ROEMR ZG0KQFG</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Europe (Stockholm)** arn:aws:controltower:eu-north-1::control/CQKTUQPFGNZN
- **Asia Pacific (Mumbai)** arn:aws:controltower:ap-south-1::control/EKPWQJMYXYJC
- **Asia Pacific (Seoul)** arn:aws:controltower:ap-northeast-2::control/GJEVNGPGXXIW
- **Asia Pacific (Tokyo)** arn:aws:controltower:ap-northeast-1:
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/TTUQITYQNLQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/role/KMOMZ HHLSJWK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/role/LAOWK RUXEWCI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/role/ZAHCC DVLHWGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/role/CVRZO MASWHHH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/IOWUKZDWGONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/CETXVRVGQUKY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/OLIY TOIMRZCM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/QXMA AXPCKZFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-central-1::control/OLIY TOIMRZCM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower me-south th-1:control/PGRA TNEIHKBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1:control/ZH QJPXBOEXCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2:control/XK PKBPMMMDZKQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2:control/JOVZ FQYFBTRR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2:control/JOVZ FQYFBTRR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.NEPTUNE.PR.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Middle East (UAE)**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/PHQRDGGBMYVR</td>
</tr>
</tbody>
</table>

**Asia Pacific (Melbourne)**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/EKFELZAAQZPG</td>
</tr>
</tbody>
</table>

---

**CT.NEPTUNE.PR.5**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.NEPTUNE.PR.5</td>
<td></td>
<td>Improve resiliency</td>
<td></td>
</tr>
</tbody>
</table>

**NIST 800-53 Rev 5 SI-12**

|          |          |          |                                   |
|          |          |          | arn:aws:controltower:us-east-1::control/NRKJRTZHJLPU |

**PCI DSS version 3.2.1 3.1**

<p>| | | | |
|          |          |          |                                   |
|          |          |          | arn:aws:controltower:us-east-1::control/NRKJRTZHJLPU |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/GGCHHGQKXAE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/IJJZNAAMPKSOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/VRSCWUWXSK00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/HNYWAXKKADCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ LFORACIZCHRBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/HJZPJJVXQESR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower:eu-west-1::control/DGTIMIBUIKZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-west-2::control/WXGMIOTBWCMX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-northern-1::control/IBHWTDKBHOQR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southeast-1::control/VFHGVCTVPMQF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/FZTDZJZCFWIV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/ILVYLTZPOHWB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/QFWSBPVIHIIC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/CT.NEPTUNE.PR.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-eas-t-1::control:sa-eas-t-1::control/KAOCDXVZVGYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3: control/AFEXSGMDSATC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/KAON KKJAVXIY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/RBOC ORVIYGTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/FHDE QVJNEKKO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/UE FOVDHBPYOP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/NELJWTJJP TYO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/EIEQGAVIHYZT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/GUZDYGGUCQEF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/LVFHIRHHXDNP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
</tbody>
</table>

CT.NEPTUNE.PR.5 4030
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.NETWORK-FIREWALL.PR.1 | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-2  
• PCI DSS version 3.2.1 1.3.6  
• PCI DSS version 3.2.1 11.4 | • Limit network access | • US East (N. Virginia)  
ar:n:aws:concrtolower:us-east-1::ctrol/MOWFC  
DWVPVGY  
• US East (Ohio)  
ar:n:aws:concrtolower:us-east-2::ctrol/GGCHB  
PSTREXK  
• US West (Oregon)  
ar:n:aws:concrtolower:us-west-2::ctrol/AHRCA  
BRNZNQM |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/SIUOUKQWZSFK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ITJWVPIYBVEB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/VALVPGBFFRBG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/JOWPYQPSKHY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/JCRWU NVVLOXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2::control/ISNZY DYDKGKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/HUIW IDBGYYJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-sou th-1::control/SEWC MVQOWXZF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/VTAPSFMTMEPO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="#">arn:aws:controltower:ap-northeast-1:control/MKTMBJSACTFI</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="#">arn:aws:controltower:eu-west-3:control/VOSZJFYQWKNN</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="#">arn:aws:controltower:sa-east-1:control/XAHWAUUTZFGI</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="#">arn:aws:controltower:us-west-1:control/RSWJSOQSPLGG</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="#">arn:aws:controltower:ap-northeast-1:control/MKTMBJSACTFI</a></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.NETWORK-FIREWALL.PR.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrolltower:ap-eas:control/CEMWK/HOGONEX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/ETUWZLERTVQI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/KFPGHTQXQZEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-1:control/HOIEWDTRLWCMZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:controltower:af-south-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/IUMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PAUHWACS</td>
</tr>
<tr>
<td>• <strong>Middle East</strong></td>
<td></td>
<td></td>
<td><strong>(Bahrain)</strong></td>
</tr>
</tbody>
</table>
|                    |           |                  | arn:aws:controltower:me-south-1::control/RRRV
|                    |           |                  | PETQNOYN                          |
| • **Israel (Tel Aviv)** |         |                  | arn:aws:controltower:il-central-1::control/UN
|                    |           |                  | RUVNFMQMTS                        |
| • **Europe (Zurich)** |         |                  | arn:aws:controltower:eu-central-2::control/FK
|                    |           |                  | DEUTBSPQQZ                        |
| • **Europe (Spain)** |          |                  | arn:aws:controltower:eu-south-2::control/ALCD
<p>|                    |           |                  | FJHBWSUF                          |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.NETWORK-FIREWALL.PR.2</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) &lt;br&gt; arn:aws:controltower:ap-southeast-4:control/OUYOBZFVXXCW</td>
</tr>
</tbody>
</table>

**CT.NETWORK-FIREWALL.PR.2**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
<td>ontroltower us-east t-1:control/SXRZL KJBMDWS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>ontroltower us-east t-2:control/IWTSV OSLDTBS</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>ontroltower ca-central-1:central/GT FHCKELKRXJ</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>ontroltower ap-south east-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/JTCRHWTVYVTMB</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Singapore)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:ap-southeast-1:control/JTCRHWTVYVTMB</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-central-1:control/GTXAMBREPYK</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-west-1:control/HOVYKEEFTIGU</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-west-2:control/KDGIPSOLEUPZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/ZLXEYHKEBBOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/ZJXSBKPNKOSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/SXDJJPDXXVTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/SDCRNFKTGMMMD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-3:cont rol/TMFXX PMEJCKA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong> arn:aws:controltower:sa-eas t-1:cont rol/ERXMH KYKAWSC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong> arn:aws:controltower:us-wes t-1:cont rol/NKALW PJQEMGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltower:ap-eas t-1:cont rol/IGGMC FBBHYCG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong> arn:aws:controltower:ap-southeast-3: CT.NETWORK-FIREWALL.PR.2 4041</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MTPRETPWRQNM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/VUNCRJLJDFIO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ERYDUHMYMURH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RSVJLVHYRQNL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FOETEMTZEZFR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/TKQZNLWJYRZK</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/ZLWUEANEGUKI</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/BUMCKVFUMSZX</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/HYPTJDAYXNHH</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---
CT.NETWORK-FIREWALL.PR.3 | NIST 800-53 Rev 5 CA-9(1)  NIST 800-53 Rev 5 CM-2  PCI DSS version 3.2.1 1.2.1  PCI DSS version 3.2.1 1.3  PCI DSS version 3.2.1 1.3.1  PCI DSS version 3.2.1 1.3.2  PCI DSS version 3.2.1 1.3.4 | Limit network access | • US East (N. Virginia)  arn:aws:controltower:us-east-1:control/ADLSXIQQCFVMIRAPIG
• ASIA Pacific (Melbourne)  arn:aws:controltower:ap-southeast-4:control/IPVFMIRAPIG

---
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong>&lt;br&gt;arn:aws:controltower:us-west-2::control/CBTUDEPFAKVKC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong>&lt;br&gt;arn:aws:controltower:ca-central-1::control/YZEDZMRQLKG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-2::control/JFLLDLXJUPDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-1::control/TKVYXDHYRAET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/EU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XJZRQMLYNG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/WQSZOXOJGABB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/IXIEKMHOPXSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/VBXMAKCXQCJP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/VBXMAKCXQCJP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/</td>
<td></td>
<td>NPXRMXOWRHB</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/</td>
<td></td>
<td>XFESNQJWYRZV</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3:control/</td>
<td></td>
<td>LAGHSXBMEPCR</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1:control/</td>
<td></td>
<td>HGQPODHBJRUD</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-1:control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-west-1:control/HWHGLJZTLCGZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/CWCHPODDCPBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controltower:ap-south-east-1:control/ISPNAEMQQYUG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-northeast-3:control/VCMKHWLPDXBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/XRAF MHDNTZXJ</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:c ontroltower er:af-south-1::control/AUWS QHUOWBSO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:c ontroltower er:me-south-1::control/NAVP EPWJBYWC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:c ontroltower er:il-central-1::control/YG KFLCKHIGYS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:c ontroltower er:eu-central-2::control/MD VWFMYJKBVA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2:control/VETV_ANXGMHXZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2:control/RFDN_THGJELTR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1:control/DJ_CDHEBKQHFM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/PIPCLZWMAQUL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------------------</td>
</tr>
</tbody>
</table>
| CT.NETWORK-FIREWALL.PR.4 | • NIST 800-53 Rev 5 AC-4(21) | • Limit network access          | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/OFYAXYSCBOV |
|                          | • NIST 800-53 Rev 5 SC-7    |                                 | • US East (Ohio)                                        
ar:aws:controltower:us-east-2::control/KMIMXOHJDVNW   |
|                          | • NIST 800-53 Rev 5 SC-7(11)|                                 | • US West (Oregon)                                     
ar:aws:controltower:us-west-2::control/VOEDRZGRSHEV   |
|                          | • NIST 800-53 Rev 5 SC-7(16)|                                 | • Canada (Central)                                     
ar:aws:controltower:ca-central-1::control/QBORBGFWFGIX |
<p>|                          | • NIST 800-53 Rev 5 SC-7(21)|                                 |                                                   |
|                          | • PCI DSS version 3.2.1 1.2.1|                                 |                                                   |
|                          | • PCI DSS version 3.2.1 1.3 |                                 |                                                   |
|                          | • PCI DSS version 3.2.1 1.3.1|                                 |                                                   |
|                          | • PCI DSS version 3.2.1 1.3.2|                                 |                                                   |
|                          | • PCI DSS version 3.2.1 1.3.4|                                 |                                                   |
|                          | • PCI DSS version 3.2.1 1.3.6|                                 |                                                   |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/BOZPZUYFXHUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AFHBFGRQFBMV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/TYHKWOJMOLOGM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/GPDNDENLPHWN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-2:control/QCBVH DIASDKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower.eu:eu-nor th-1:control/CSIF NPQGXWV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower.eu:ap-south-1:control/VZAF YQVTASYJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower.eu:ap-northeast-2:control/NVRIPMNHUXMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower.eu:ap-northeast-1:control/CT.NETWORK-FIREWALL.PR.4 4053</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ETWPTTTQYSUZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-wes t-3::control/PSXIXHKFMZYD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::control/TQEZIBLEAPLP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::control/CWUANEFBSYHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::control/OXBWNYZSDNXJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/PGEABSLQNWSZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/TXSZCXGXZSSN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/VFJYJRIWCXTJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/QPYERNZE0VFW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-----------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                 | ontroltower:me-south-1::control/VAMN
|                    |           |                 | EBFICAGE                           |
| • Israel (Tel Aviv)| arn:aws:c |                 | ontroltower:il-central-1::control/IT
|                    | ontroltower |                 | FUJRZDNXBC                         |
| • Europe (Zurich)  | arn:aws:c |                 | ontroltower:eu-central-2::control/HY
|                    | ontroltower |                 | YFUKRTDÍSL                         |
| • Europe (Spain)   | arn:aws:c |                 | ontroltower:eu-south-2::control/YN
|                    | ontroltower |                 | MVCGZMBR                           |
| • Asia Pacific     | arn:aws:c |                 | ontroltower:ap-south-2::control/YN
| (Hyderabad)        | ontroltower |                 | MVCGZMBR                           |
### CT.NETWORK-FIREWALL.PR.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.NETWORK-FIREWALL.PR.5 | • NIST 800-53 Rev 5 CP-10  | • Improve resiliency | • US East (N. Virginia)  
|                      | • NIST 800-53 Rev 5 CP-6(2) |                   | arn:aws:controltower:us-east-1:control/YDTWTSMHHQET |
|                      | • NIST 800-53 Rev 5 SC-36   |                   |                                   |
|                      | • NIST 800-53 Rev 5 SC-5(2) |                   |                                   |

- Middle East (UAE)  
  arn:aws:controltower:me-central-1:control/QE GKHNAVRPTN
- Asia Pacific (Melbourne)  
  arn:aws:controltower:ap-southeast-4:control/EAMNVEPGNHRA
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • NIST 800-53 Rev 5 SI-13(5) | | | • **US East (Ohio)**
| | | | arn:aws:controltower:us-east-2::control/BYVZATKHREIJ
| | | | • **US West (Oregon)**
| | | | arn:aws:controltower:us-west-2::control/ZDGARGCZBRF0
| | | | • **Canada (Central)**
| | | | arn:aws:controltower:ca-central-1::control/JNLBIPKXYYSI
| | | | • **Asia Pacific (Sydney)**
| | | | arn:aws:controltower:ap-southeast-2::control/WBNIXYIRGJG
| | | | • **Asia Pacific (Singapore)**
| | | | arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ JIUDDMVXUNTX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/PP RQOFYBMLWE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/YJUCHDZFHZCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/KQASVJWTIWQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-1::control/MIVM BADGFITX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1::control/DOJBIXUZZFQD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/LUKCMXOPMMCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/AYSFSBPIZDPJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower:eu-west-3::control/YHGHTNJVIFPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong> arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-eas:control:ZIOGN:BGBLKOT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:control/JVTNUXCWXDNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/AMRIRKFDCRQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/YRIOWAKIKPBI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/VVEZIYOYBNTX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/XWLUUAZOREAS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/O0YQFEWCJLCI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/XXAI DIGBWOYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AOIKXRLDQGDB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/ORXIGVIYIKIK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
</tbody>
</table>

**AWS Control Tower User Guide**

Control identifier, Framework, Control objective, Control API identifiers, by Region

CT.NETWORK-FIREWALL.PR.5
### AWS Control Tower User Guide

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.OPENSEARCH.PR.1</td>
<td>NIST 800-53 Rev 5 AC-17(2)</td>
<td>Encrypt data at rest</td>
<td>er:ap-southeast-4:control/ECKHABEFONXL</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-2(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-2(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-21</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CT.OPENSEARCH.PR.1**

- **US East (N. Virginia)**
  - arn:aws:controltower:us-east-1::control/RIIBJUAGRIHM
- **US East (Ohio)**
  - arn:aws:controltower:us-east-2::control/ZKJKSTRBBZVZ
- **US West (Oregon)**
  - arn:aws:controltower:us-west-2::control/LIWOVOJLBRAX
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 AC-5</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/DYHUHTZMANYT</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/ZKCZQKAZSTAI</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-6(9)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/VIMTCPWLJSNN</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/KYNVRIQMLTBN</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-central-1:control/KYNVRIQMLTBN</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CP-10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 IA-5(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td>er:eu-wes t-1:control/MUMEK FGKATWE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-north-1:control/LFGR NFRJMKXE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/ZBDN HDIOZEMY</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/FGYTCVPCXEYE
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/XFOEOJKEETKE</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td>South America (São Paulo) arn:aws:controltower:sa-east-1:control/PHABICPTLMTC</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controltower:ap-northeast-1:control/XFOEOJKEETKE</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Asia Pacific (Jakarta)
arn:aws:controltower:ap-east-1::control/TNDQHFJXDBPS

Asia Pacific (Osaka)
arn:aws:controltower:ap-southeast-3::control/BZMOURJQBWKA

Europe (Milan)
arn:aws:controltower:eu-south-1::control/BIKTRNYRJZ0C

Africa (Cape Town)
arn:aws:controltower:af-south-1::control/
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td>trol/SQGK FIPVDSTL</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/HGHTOHZXLQHR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/OSIPIFATXXHO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/YKSFVHHWWRUZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:controltower:eu-south-2::control/RQXYFZTDBGCS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.10</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
<td>ontroltowerer:us-east-1::control/AASJRFPGBVMO</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>arn:aws:controltowerer:us-east-1::control/QZXAA LUVUXXP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltowerer:us-east-2::control/SMJAA EIMFEDL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltowerer:ca-central-1::control/CUKNPGFNIVZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltowerer:ap-southeast-2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>:control/JUUVIFSWJWIT</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>ARN:aws:controltower:ap-southeast-1: :control/LLKOQRPWTV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>ARN:aws:controltower:eu-central-1: :control/CYKUSFNSTJZZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>ARN:aws:controltower:eu-west-1: :control/TJZKDXZQBHAF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>ARN:aws:controltower:eu-west-2: :control/VYKPKMDZGQIW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/FOCMHCPHMGIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/VOXPBUXXXSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/XRNYJUFPDRET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/YTWEMPALPIMN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **South America (São Paulo)**
  - `arn:aws:controltower:sa-east-1::control/KGQIWODUHUH`  
- **US West (N. California)**
  - `arn:aws:controltower:us-west-1::control/EKMQUENCYHBJGTX`  
- **Asia Pacific (Hong Kong)**
  - `arn:aws:controltower:ap-east-1::control/BHBQIYXUEQMK`  
- **Asia Pacific (Jakarta)**
  - `arn:aws:controltower:ap-southeast-3::control/KGQIWODUHUH`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/WTKHFUNAHSRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PGHNZNEDFFYC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/OOWBDUGZXPK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/GAER0JSFBVFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/CDQCVMOQIDD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/QC KSAFP00KQD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/VULXBGHMFRCG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/LSFH GNPMF0HV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/KJPZFVGAXUSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.11</td>
<td>NIST 800-53 Rev 5 SC-23(3)</td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.11</td>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.11</td>
<td>NIST 800-53 Rev 5 SC-8</td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
<tr>
<td>CT.OPENSEARCH.PR.11</td>
<td>NIST 800-53 Rev 5 SC-8(1)</td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/PRTVHUYCEBIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/JJJBKFBKOIFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/YBBEBQCIZYLYW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/NRCZHBGZPNFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/RUYKNMPZHEOE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/DDNSAGXFVZYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/RBAIGZPHECPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/AMIYCNJHXFZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/BPRGFRVWRLYQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• <em>Asia Pacific (Seoul)</em>&lt;br&gt;arn:aws:controltower:ap-northeast-2:control/SHXZHXYDIEM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <em>Asia Pacific (Tokyo)</em>&lt;br&gt;arn:aws:controltower:ap-northeast-1:control/BBXSREYFRRMS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <em>Europe (Paris)</em>&lt;br&gt;arn:aws:controltower:eu-west-3:control/IYYIWMLMYEGN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <em>South America (São Paulo)</em>&lt;br&gt;arn:aws:controltower:sa-east-1:control/CSBQQWECHTXL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <em>US West (N. California)</em>&lt;br&gt;arn:aws:controltower:us-west-2:control/CSBQQWECHTXL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:us-west-1::control/ITXUJRWDZCIN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltowerer:ap-east-1::control/XIKCXBOTLKEJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltowerer:ap-southeast-3::control/SVWDDTCGVTOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltowerer:ap-northeast-3::control/VZMEQZKMKZTD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltowerer:eu-southeast-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/LEHJKCAWQHPJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/YAZJCIWHQLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/SKZXZATSPLYXJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/NZUIIJPXVDJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/TZUJHBAATELA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/XOAOJPZFESJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/NXTCIITQHWKW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/LUZFSXFQSKRQ</td>
</tr>
</tbody>
</table>
## CT.OPENSEARCH.PR.12

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.OPENSEARCH.PR.12 | • NIST 800-53 Rev 5 AC-2(4)  
• NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AC-6(9)  
• NIST 800-53 Rev 5 AU-10  
• NIST 800-53 Rev 5 AU-12  
• NIST 800-53 Rev 5 AU-2  
• NIST 800-53 Rev 5 AU-3  
• NIST 800-53 Rev 5 AU-6(3)  
• NIST 800-53 Rev 5 AU-6(4)  
• NIST 800-53 Rev 5 CA-7  
• NIST 800-53 Rev 5 SC-7(9)  
• NIST 800-53 Rev 5 SI-3(8)  
• NIST 800-53 Rev 5 SI-4(20)  
• NIST 800-53 Rev 5 SI-7(8) | • Establish logging and monitoring |  
• US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/GDSONMYFZRLF  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/JXKVVKUICIIVI  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/AOMKMLLKIJHL  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/GBORBUKXXVXWV |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/GIVZCHZYHVFF</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/ABSANFLGUHSE</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/BPDFIRXUUCOO</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/YHCHFBWNQKEM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/ABQEJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NCVZNTT</td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-northeast-1:control/LXMWYMCWWQDQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-south-east-2:control/LXMWYMCWWQDQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-northeast-2:control/LXMWYMCWWQDQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-northeast-1:control/LXMWYMCWWQDQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FLPLZPRKQSRW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/HIGDERKYHKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/VCPRGZXWFHWH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/TJDUFYTASRZU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/MTPHRGYMTXNZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/GXDBIGPNJLKC</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3::control/PFESRXEPJLXF</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/YZFSNBZYNGBN</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/SNIFQJTWZTDE</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/SNIFQJTWZTDE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/JEYPGHUYMGGL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/FEJRRCAAXHDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/QKHWLPCVKOEF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/ITLTQKWUNYO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/ITLTQKWUNYO</td>
</tr>
</tbody>
</table>
### CT.OPENSEARCH.PR.13

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.OPENSEARCH.ARCH.PR.13</td>
<td>• NIST 800-53 Rev 5 AC-2(4)</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/SFXALXZDGECS</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/USTI0XRNYFAV</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/XUNNA BZCEQYZ</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/MH0CPNBLGGBET</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/LIQLRJNJVVLN</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/MSQLWOZPLNJR</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/ZSCMIFQYHQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/ZOCELNRKWSQC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/EGIAPDZCHMOG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/SLMGZLLTGPDT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/XRXY SFHHVRGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/BOWBHCDYIKIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/IHQJBYGOYRNJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/WWWKEBANHSY0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-east-1:control/CTHVP VEZJBDJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1:control/PMWAY PJMSHES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1:control/DRJJP MHHMDLX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/CRYYGMVJETX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-1:control/PMWAY PJMSHES</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:control/OCIFQRYXYVRZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/SIJL MHUMIBEA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/IIUI GPGDAKKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/ZABURMYUXTCP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/AF CG0VQGNLBG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/XMZAQADYESGL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/EEOMDYLLXXFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/FNRIXBVIOTIF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/XDWWRCLWBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| CT.OPENSEARCH.PR.14| • NIST 800-53 Rev 5 CP-10  
• NIST 800-53 Rev 5 CP-6(2)  
• NIST 800-53 Rev 5 SC-36  
• NIST 800-53 Rev 5 SC-5(2)  
• NIST 800-53 Rev 5 SI-13(5) | • Improve availability | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/GXAUYPCLBCBS  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/JKMVKOYUMAPQ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/CFWVMYGFCAX |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1::control/BHKRJHKOIARA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2::control/HYENHQKNDJCT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1::control/XBNRHLHSYAQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/SBAGREZDUTQH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/OMMRA DBYMVNJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-wes t-2::control/LLSYO VEGXGCJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/BAKG LCSOQAJV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/POFY FDIMHQKH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/AVEPZTWUQOHV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/OOELHVJWNSQU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/GVQQKJDZIBUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/FCOHMGYYZGMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/ERMHCHCHXXQM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
</tbody>
</table>
|                    |           |                   | arn:aws:c
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/UBVVZQBVUCCN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/DSVSBRMWZIKQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/VXVTTKVAIVTX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1:control/HZEGOTZOHZQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/</td>
</tr>
</tbody>
</table>

CT.OPENSEARCH.PR.14
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/COTP YWONNCWV</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/ZDYNQADBTKIZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/GPETDJRRCPRN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/DFGBJORYMMNY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td>arn:aws:controltower:eu-south-2::control/PWCYCKZXADUQ</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
---|---|---|---

#### CT.OPENSEARCH.PR.15

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CT.OPENSEARCH.ARCH.PR.15</strong></td>
<td>- NIST 800-53 Rev 5 AC-2(1)</td>
<td>- Enforce least privilege</td>
<td>- US East (N. Virginia) arn:aws:controltower:ap-southeast-4::control/WAZDZCMZ0CTV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-3</td>
<td>NIST 800-53 Rev 5 AC-3(15)</td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td>US East (Ohio)</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-5</td>
<td>NIST 800-53 Rev 5 AC-5</td>
<td>NIST 800-53 Rev 5 AC-6</td>
<td>US West (Oregon)</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.1.1</td>
<td>PCI DSS version 3.2.1 7.2.1</td>
<td>PCI DSS version 3.2.1 7.2.2</td>
<td>Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>:control/GTQNOHLWVMVH</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td>(Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ORFJWTUPGSZY</td>
</tr>
<tr>
<td>Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/CYLADYNNHZZX</td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/SXSLJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JAOTGMY</td>
</tr>
<tr>
<td>Europe (London)</td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/SRFWZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JMTQRZZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/XMRBSJAKYPQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/TJJE NZZFEAXL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/CSJDXWLKOSQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/NCZ0CAQXAZCZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/EFHXQGWQSZEK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1::control/CFZPGDJXQJGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1::control/EBPSQUNFBDRL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas-t-1::control/OHTDBHWVHJKO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:</td>
</tr>
</tbody>
</table>

---

CT.OPENSEARCH.PR.15 4107
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RUVAAYRTPBWD</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/RUVAAYRTPBWD</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/USTZBJHMMNPB</td>
<td></td>
<td>VOMVAUOIUNDR</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/GRUCGLOHAAOD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1:control/ESPWZZWLPWYN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong>&lt;br&gt;arn:aws:controltower:il-central-1::control/PQKDYOLOLRRFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/PDUHLZPPTVRK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/QHOQNFCCSYHJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/PXJLPJPJDADLP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
### Control identifier

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.OPENSEARCH.PR.16</td>
<td>• NIST 800-53 Rev 5 AC-17(2)</td>
<td>• Encrypt data in transit</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/ULWLGPROCXUE</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/WICEU AFLUNHP</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 IA-5(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td><strong>US West (Oregon)</strong> arn:aws:controltower:us-west-2::control/SAWLZWOPSRIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIST 800-53 Rev 5 SC-8</td>
<td><strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1::control/BYMNEKJVBPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIST 800-53 Rev 5 SC-8(1)</td>
<td><strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2::control/SUIONSKYSCOB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIST 800-53 Rev 5 SC-8(2)</td>
<td><strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1::control/RZZWLANJDKWW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIST 800-53 Rev 5 SI-7(6)</td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PCI DSS version 3.2.1 2.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PCI DSS version 3.2.1 4.1</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/RF ZMHDDCATDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) Arn:aws:controltower:eu-west-1::control/VTQFJ KCNUPTA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) Arn:aws:controltower:eu-west-2::control/QMPLIL NQUJKOC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) Arn:aws:controltower:eu-northeast-1::control/YUIU SCIMUDH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) Arn:aws:controltower:ap-southeast-1::control/KZTA CTIDLFAB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control/QUFLTZGKIHYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:control/UYTWQUJJSXPK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/RHPSFRHPSFIDONVGY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/OHTIEMUKEYQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/OHTIEMUKEYQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-west-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AKOKG MZDNDBH</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower</td>
<td>Asia Pacific (Hong Kong)</td>
<td>er:ap-east-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/HQXCY QUHXYZ</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower</td>
<td>Asia Pacific (Jakarta)</td>
<td>er:ap-south-east-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BCISWMGETOEK</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower</td>
<td>Asia Pacific (Osaka)</td>
<td>er:ap-north-east-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PKHUQJEJCLWS</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower</td>
<td>Europe (Milan)</td>
<td>er:eu-south-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/JSJW BUBPJFBG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1:control/UYWB KVDKLLPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East Bahrain</strong> arn:aws:controltower:me-south-1:control/IWUP TYIRKSTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1:control/UF FPOLWQQNMA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2:control/WT OJCTPLOFOI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/JRBK UHRGFZJN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/CINY SCTVZMHX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/XC NNRCPBPQXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/LAPLGFJTJAXB</td>
</tr>
</tbody>
</table>
### CT.OPENSEARCH.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.OPENSEARCH.PR.2 | • NIST 800-53 Rev 5 AC-21                       | • Limit network access | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 AC-3                        |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 AC-3(7)                     |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 AC-4                        |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 AC-4(21)                    |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 AC-6                        |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 AC-6(11)                    |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 SC-7                        |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 SC-7(11)                    |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 SC-7(16)                    |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 SC-7(20)                    |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 SC-7(21)                    |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 SC-7(3)                     |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 SC-7(4)                     |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
|                    | • NIST 800-53 Rev 5 SC-7(9)                     |                  | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VTLIUXDAVRDR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/XEVFCYEQTVVZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IHEMPFCKBBEK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XMRAHLUXZRVT |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/GYGEIIYYZNLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/NXUQGVFM0HAG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/ACUNINHQNGLI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/LPUSJ0MLHGCV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FUSION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>RIFQ</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Europe (Stockholm)** `arn:aws:controltower:eu-nor:eu-west-2::control/WEYQXRFHOQCU`
- **Asia Pacific (Mumbai)** `arn:aws:controltower:ap-south-1::control/QLSJKVLPLMMO`
- **Asia Pacific (Seoul)** `arn:aws:controltower:ap-northeast-2::control/TSAAUQSILYSH`
- **Asia Pacific (Tokyo)** `arn:aws:controltower:ap-northeast-1::control/UCLVYXAVOAHM`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ TJJGFRBZRZSV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3::control/NEEJCATZEIMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1::control/BGWSRBPMDSUR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1::control/IFNDKBNUSKCD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas-t-1::control/BXKDBCNEKUKQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/YCCNRZZHQRAU</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3::control/CQLGRRFXIEID</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/NPLWOOSVWQNS</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/WVGIWATQXSXNV</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/WVGIWATQXSXNV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/ODWP:JGSCURQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/TSMXHLKSOGU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/OMJYWQWWHVL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/CERU:JQSWOLEG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
</tbody>
</table>
### CT.OPENSEARCH.PR.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.OPENSEARCH.PR.3 | • NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-23  
• NIST 800-53 Rev 5 SC-23(3) | • Encrypt data in transit | • US East (N. Virginia)  
ar:n:aws:controltower:us-east-1::control/HLPMH XZUFAMP |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/UTXSXANDROVO</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/QSBSTX HVLFWY0</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/QUIFRDEFZBK</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/QQBYBBDRDPPJS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-east-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RMNNULZ XVFF O</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/NGSGMLMBVF0K</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/CAZKXJYXMWBL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/HXLIHVMXMHFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-1::control/QRGSGEZFDHUI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/OGZKUCPQNZAZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/UGGPNNQICGZQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/WZFMVXTTCMF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/MTARTONVTLOX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/MTARTONVTLOX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::cont rol/JFSVG FJCHFQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong> arn:aws:c ontroltow er:us-wes t-1::cont rol/PUPHH EVPARPK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong> arn:aws:c ontroltow er:ap-eas t-1::cont rol/GZFI0 CNJXQLT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong> arn:aws:c ontroltow er:ap-south-east-3: :control/ QLYZGPDANYDA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong> arn:aws:c ontroltow er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:control/RAGNOCSYSIJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/HQFAQRORCIYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/VHMQLVZKWN0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/PTVICLGFIUPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/WBHFYKPZUPQU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/HO WAJKATTUKZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/AFJCTBCRU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/HFBWABBDQUGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/FP CUMXNOKTVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.OPENSEARCH.PR.4 | • NIST 800-53 Rev 5 AC-2(4)  
• NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AC-6(9)  
• NIST 800-53 Rev 5 AU-10  
• NIST 800-53 Rev 5 AU-12  
• NIST 800-53 Rev 5 AU-2  
• NIST 800-53 Rev 5 AU-3  
• NIST 800-53 Rev 5 AU-6(3)  
• NIST 800-53 Rev 5 AU-6(4)  
• NIST 800-53 Rev 5 CA-7 | • Establish logging and monitoring |  
• US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/JSTNM TMFRKG0  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/ZJCTNM LJIOESN  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/AKGYT TZTWZFI |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/DOPPXRIVAYVN</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/UYAXZWGNLSOM</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/NOEXBYDHYFLN</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/QWERPPLZPCHT</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td>er:eu-west-1::control/VPWHX JISTFOH</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>er:eu-west-2::control/YZZBK RFXBVMZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-east-1::control/KLCY SVFSKGB0</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/EJLR JLUVBNHN</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/ZYBIFAAQ0QZB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/NEMEBLSVQDQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:t-3::control/ UHBZCFPBQDRL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:t-1::control/ AJUFPFJHAONT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:t-1::control/ EWSFLJITRUHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southchina::control/NEMEBLSVQDQW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOLOKFEEGTJH</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOLOKFEEGTJH</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOLOKFEEGTJH</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BQZZSSJVRNHD</td>
</tr>
<tr>
<td>• Africa (Cape</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SSJVRNHD</td>
</tr>
</tbody>
</table>

This table shows the control identifiers for AWS Control Tower, including framework and objective details, along with specific API identifiers for various regions.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/JCZC TQBRLIFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East</strong>&lt;br&gt;(Bahrain)&lt;br&gt;arn:aws:controltower:me-south-1::control/WZCA ZXFJWWFV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong>&lt;br&gt;arn:aws:controltower:il-central-1::control/GFKZAMSBYHGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/LZ HEPFFMOGFV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/ZKDDJNNGEET</td>
</tr>
</tbody>
</table>
### Control API identifiers, by Region

- **Asia Pacific (Hyderabad)**
  `arn:aws:controltower:ap-south-2::control/RHZECQRAAAZW`

- **Middle East (UAE)**
  `arn:aws:controltower:me-central-1::control/PGSJHVOVEJV`

- **Asia Pacific (Melbourne)**
  `arn:aws:controltower:ap-southeast-4::control/IPQWJIRBIWGQ`

---

### CT.OPENSEARCH.PR.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.OPENSEARCH.ARC.H.PR.5 | • NIST 800-53 Rev 5 AC-2(4) | • Establish logging and monitoring | • US East (N. Virginia)
  `arn:aws:c` |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/KYAFRIXOLJCM</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-6(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>arn:aws:controltower:us-east-1::control/LVNKFQFKMTWR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/CNSIZGNVCLCLN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/WZANTGTEGLMA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/WZANTGTEGLMA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• • PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• • PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• • PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td>:control/ORIKZBBNSZRB</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/TW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/QEEZPB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/YCOUG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/GLKQJFWSKVCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/FRHD0EXXBOWQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/JCCUGYQNCITY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/ZBUOYIWGUJZP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/USWET IYXXFTTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong> arn:aws:controltower:sa-eas t-1::control/ZJMOCDQ0AMSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong> arn:aws:controltower:us-wes t-1::control/EIHWSQEDMQS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltower:ap-eas t-1::control/DNGAAKXQFDQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong> arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PWUNDFXSUYAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/VXAOMOWSCIBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/JVKV VHVYGEXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/IBPR SOCDFQRG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/QAYJ NRWJQYBO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/WZ SBECYYSBSU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/IF NTITBLCTPB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/WLQZ FLEVVVGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/XJXE ZTTHXKQF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-2::control/IF NTITBLCTPB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.OPENSEARCH.PR.6 | NIST 800-53 Rev 5 CP-10 | Improve availability | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AIBFRQCHG00 |
|                     | NIST 800-53 Rev 5 CP-6(2) |                       | US East (Ohio)  
arn:aws:controltower:us-east-2::control/LXDACFXTMIO0 |
<p>|                     | NIST 800-53 Rev 5 SC-36 |                       |                     |
|                     | NIST 800-53 Rev 5 SC-5(2) |                       |                     |
|                     | NIST 800-53 Rev 5 SI-13(5) |                       |                     |
| Framework          | NIST 800-53 Rev 5 CP-10 | Improve availability |                     |
| Control objective   | NIST 800-53 Rev 5 CP-6(2) |                       |                     |
| Control API identifiers, by Region | NIST 800-53 Rev 5 SC-36 |                       |                     |
| Control objective   | NIST 800-53 Rev 5 SC-5(2) |                       |                     |
| Control API identifiers, by Region | NIST 800-53 Rev 5 SI-13(5) |                       |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2:control/ENATZEFPYMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1:control/ATEKPKHHYQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/UTDGLWWSQDEU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/VJKQXGB0JYPYX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/EM JYVYYDQRX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/QMIRWQGLWTKC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/EREYWUMMXCYD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/WSBITCGHGEDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/HKMNHQCBPFB1</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:ap-northeast-2:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BQNHZOCGNLIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:ap-northeast-1:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ULUJPIOBDNXMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:eu-west-3:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HRQELGWRNOFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:sa-east-1:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LIRWXACRJOHY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>arn:aws:controltower:</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-west-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/DNMZN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0APKWK0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-east-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/NHTZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0YISWAH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-east-3::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HIZSJVW0IWXP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast-3::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WFTCZPQQJGQN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-east-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-----------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/PYSB FVWCMAU</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:ctroltower:af-south-1::control/ARTU ADLEDUAQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:ctroltower:me-south-1::control/JWVSMFERQGHX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:ctroltower:il-central-1::control/XK CISKPFWCSK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:ctroltower:eu-central-2::control/VP IIPJOBXET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/FECU ISCKYVVV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/OCLO CVAYTOOI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/GR IXGVMZZGTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower:ap-southeast-4::control/YPZCLPKBNGIA</td>
</tr>
</tbody>
</table>
# CT.OPENSEARCH.PR.7

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.OPENSEARCH.PR.7 | • NIST 800-53 Rev 5 CP-10  
• NIST 800-53 Rev 5 CP-6(2)  
• NIST 800-53 Rev 5 SC-36  
• NIST 800-53 Rev 5 SC-5(2)  
• NIST 800-53 Rev 5 SI-13(5) | • Improve availability | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/YZEZWADHNHLT  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/AIOOYWFDODGTZ  
• **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/WKDTZIQQBFDF  
• **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/MDJZFKJJKKFMG |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control/BEKZJRWESEGED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:control/YXTTBALIVPSX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-cen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tral-1:control/INNDAQGPPPHVC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/UHQGAJJBQDDJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/CGYOV DBJAZLY</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-nor th-1::cont rol/GFZR KVAQNTNM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::cont rol/SJEV TRVISWQO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control LDJIZXCU LADJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/GKHBCXGNPZMK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/THXOAXRJOLPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/ITGIWIHHKFYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/CACOFIMRPBKI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/OJFEGCMAQKJO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3::control/BQWPTLYFLVJT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3::control/BAKHBHLOYKAA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/ASNSDRVZSYXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/WZHBVAEUBFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower::</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south:control/HILH:CIVHZRUJ</td>
</tr>
</tbody>
</table>
|                    |           |                   | • **Israel (Tel Aviv)**
|                    |           |                   | arn:aws:controltower:il-central:control/HO:JNWTFCAPQJ |
|                    |           |                   | • **Europe (Zurich)**
|                    |           |                   | arn:aws:controltower:eu-central:control/BQ:NTMFnFOIRL |
|                    |           |                   | • **Europe (Spain)**
|                    |           |                   | arn:aws:controltower:ap-south:control/GUCQ:QGCDGDDNS |
|                    |           |                   | • **Asia Pacific (Hyderabad)**
|                    |           |                   | arn:aws:controltower:ap-south:control/GUCQ:QGCDGDDNS |
### AWS Control Tower User Guide

#### Control identifier

<table>
<thead>
<tr>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-17(2)</td>
<td>Encrypt data in transit</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/OHXMUXUWTJTT</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-4</td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 IA-5(1)</td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-12(3)</td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
</tbody>
</table>

---

**CT.OPENSEARCH.PR.8**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.OPENSEARCH.PR.8</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>Middle East (UAE)</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>Asia Pacific (Melbourne)</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
</tbody>
</table>

---

**CT.OPENSEARCH.PR.8**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.OPENSEARCH.PR.8</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>Middle East (UAE)</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>Asia Pacific (Melbourne)</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/WJYDNSSJUZJ</td>
</tr>
<tr>
<td>SC-13</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/BAGLUVGNYLRFN</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/PKOEOZEUJQ</td>
</tr>
<tr>
<td>SC-23</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/RUFEVUMS0QRX</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-2::control/RUFEVUMS0QRX</td>
</tr>
<tr>
<td>SC-23(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC-8(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC-8(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: control/CLXJODNHERHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:control/tower:eu-central-1::control/YYKVVYXHEMUIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:control/tower:eu-west-1::control/NOACZITNOFIL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:control/tower:eu-north-1::control/XUOYURYPSGTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:control/tower:eu-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/EJEEGAXFUIUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/ALICRWQMXIKK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/AJMLARVDOFYW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/RTMLTRPISDQU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:sa-eas t-1::cont rol/SKGWR FAEEAUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (N. California) arn:aws:c ontroltower er:us-wes t-1::cont rol/UMATV VTIVRDT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:c ontroltower er:ap-eas t-1::cont rol/AJFWG MGACTIU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:c ontroltower er:ap-sou theast-3: :control/ WHKQJXKELYJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:c ontroltower er:ap-nor</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control/MDWFWNZOUXSM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/NSOLJEXZYNL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/VVGOWQKFJYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/YVHFPPLXVZJFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/XUZUWYQFJFI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • Europe (Zurich) arn:aws:controltower:eu-central-2::control/ZJ
|                    |           |                  | NZNJLFXDSR                        |
|                    |           |                  | • Europe (Spain) arn:aws:controltower:eu-south-2::control/GTNCYQERTNUR |
|                    |           |                  | • Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/AVGV
|                    |           |                  | RWYMXRXX                          |
|                    |           |                  | • Middle East (UAE) arn:aws:controltower:me-central-1::control/ED
|                    |           |                  | RAKQMAORKE                        |
|                    |           |                  | • Asia Pacific (Melbourne) arn:aws:controltower:ap-south-2::control/AVGV
|                    |           |                  | RWYMXRXX                          |
## CT.OPENSEARCH.PR.9

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| **CT.OPENSEARCH.CHAR.PR.9** | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 3.4  
• PCI DSS version 3.2.1 8.2.1 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/KHZCMYXGFVCV  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/CZMXNAENBDTR  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/ZIBAOFHKZHGY |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/IX YPCNJPAVYP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/GLPWOLQVEQJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/UCOLFZDGGJJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower.eu-central-1:control/MG UGUPHVHUUC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/ICDKM TFLINVG</td>
</tr>
<tr>
<td>arn:aws:controltower:eu-wes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/NUKBYHBXOKQ</td>
</tr>
<tr>
<td>arn:aws:controltower:eu-nor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>er:eu-nor</td>
<td></td>
<td></td>
<td>er:eu-nor t-1::control/GKDVGQZTOHFQG</td>
</tr>
<tr>
<td>arn:aws:controltower:ap-south</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-northeast</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>er:eu-nor</td>
<td></td>
<td></td>
<td>er:eu-nor t-1::control/GWVTUMUOXNCX</td>
</tr>
<tr>
<td>arn:aws:controltower:ap-south</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-northeast</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/QXOGTDDBDLUJI</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/CUUDCPZYQEDD</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/DBOUBKGZADQE</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/PHDGPGPDNLNZ</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/QXOGTDDBDLUJI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AASYBLNJTFYE</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LYXBCHEEZPVN</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZQAMBSNTXDIJ</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:eu-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>the-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VRDRYTLTAWF</td>
</tr>
<tr>
<td>• Africa (Cape</td>
<td></td>
<td></td>
<td>Town) arn:aws:controltowerer:af-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>the-1::control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/CQEE KOEIBBIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:c ontroltower er:me-south-1:control/SNXVGVARRXYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israil (Tel Aviv)</strong> arn:aws:c ontroltower er:il-central-1:control/MV YIGHIVSXCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:c ontroltower er:eu-central-2:control/EJ VVGUIBRFZ0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:c ontroltower er:eu-south-2:control/NPIG GPFBBLBTJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.RDS.PR.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARN:aws:controltower:ap-south-2::control/TAOGFQGDMGOD</td>
<td>Asia Pacific (Hyderabad)</td>
<td>• Improve availability</td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/ENOKJPRMLWYP</td>
</tr>
<tr>
<td>ARN:aws:controltower:ap-southeast-4::control/ZFTZJSJUIUYUR</td>
<td>Asia Pacific (Melbourne)</td>
<td>• Improve availability</td>
<td>• US East (N. Virginia) arn:aws:controltower:ap-southeast-4::control/ZFTZJSJUIUYUR</td>
</tr>
<tr>
<td>CT.RDS.PR.1</td>
<td>CIS AWS Benchmark 1.4 2.3.1</td>
<td>• Improve availability</td>
<td>• US East (N. Virginia) arn:aws:controltower:ap-southeast-4::control/ZFTZJSJUIUYUR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-2(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/CIPCP CUPIFSX</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/CPBJP VIEHMMU</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/QF AFUIKDIHXA</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CM-3</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/ :XFYDDJQMPBSV</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/ :PBWERHRPPVKE</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CM-8(1)</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/ :NEDLHORPMNM</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-west-1:control/ :DKTUU</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:ct...</td>
</tr>
<tr>
<td>SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:ct...</td>
</tr>
<tr>
<td>SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:ct...</td>
</tr>
<tr>
<td>SC-7(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>Europe (Paris) arn:aws:ct...</td>
</tr>
<tr>
<td>SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI-13(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Europe (Stockholm) arn:aws:controltower:eu-north-1::control/DQYDQALNZIZZ

Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/HZBEHSXYTYJP

Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/IQZLHKCZPRDQ

Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/GYEHZOAWYUUR

Europe (Paris) arn:aws:controltower

CT.RDS.PR.1

4172
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>er:eu-wes-t-3::control/RAGAKMUCIMRJ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **South America (São Paulo)**
  - arn:aws:controltower:sa-east-1::control/PHKJMGXZWMWH
- **US West (N. California)**
  - arn:aws:controltower:us-west-1::control/RAXPKGFBBHIP
- **Asia Pacific (Hong Kong)**
  - arn:aws:controltower:ap-east-1::control/PHKJMGXZWMWH
- **Asia Pacific (Jakarta)**
  - arn:aws:controltower:ap-southeast-3::control/PHKJMGXZWMWH

CT.RDS.PR.1 4175
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 11.5</td>
<td></td>
<td></td>
<td>:control/HUPJOPPYSUGA</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Asia Pacific (Osaka)  
arn:aws:controltower:ap-northeast-3::control/GICLLRYRAVTC

Europe (Milan)  
arn:aws:controltower:eu-south-1::control/YDIFCPCASQLB

Africa (Cape Town)  
arn:aws:controltower:af-south-1::control/YDIFCPCASQLB

Middle East (Bahrain)  
arn:aws:controltower:me-south-1::control/UUBOTNXZHMLG
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong>&lt;br&gt;arn:aws:controltower:il-central-1::control/YLJBMFWYQGIP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/ZRDDEHVOICLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/UMPYPULZBKMV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/JEHZOCTRSDL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central-1::control/YLJBMFWYQGIP</td>
</tr>
</tbody>
</table>
### CT.RDS.PR.10

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.RDS.PR.10</td>
<td></td>
<td>Protect configurations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (N. Virginia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-east-1::control/TDLAW EVSVJFW</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-east-2::control/MIIGPMTVJKED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-west-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/YISDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QYBVSTR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ca-central-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/DV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XCTDQPQANLR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-east-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/0VTFQMGWPNHM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south-east-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/QESQXSXDHEYUX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-central-1::control/ON NOHNALHBAH</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/LYZSD LIUYNXH</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/EAHGN ZJQRUJY</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/OLNL HXEKJZGE</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/CGCC LNZVZFEY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/SECLXZVIEZO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/LXVULOYZQA0H</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower:eu-west-3::control/IXRCLTJDINER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong> arn:aws:controltower:sa-east-1::control/NNOKBENVMLPI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong> arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ontroltower</strong>&lt;br&gt;er:us-wes&lt;br&gt;t-1::control/NZKBJ FTZDXTE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong>&lt;br&gt;arn:aws:controltower&lt;br&gt;er:ap-eas&lt;br&gt;t-1::control/ZNKDV OVBDAVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong>&lt;br&gt;arn:aws:controltower&lt;br&gt;er:ap-sou&lt;br&gt;theast-3:control/UZRSPFWZQTYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong>&lt;br&gt;arn:aws:controltower&lt;br&gt;er:ap-nor&lt;br&gt;theast-3:control/UXAVTPDBVFPF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong>&lt;br&gt;arn:aws:controltower&lt;br&gt;er:eu-sou&lt;br&gt;theast-1:control/UXAVTPDBVFPF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/CKJE SAIGJNTU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower er:af-south-1:control/LBQM OFWQPXZS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower er:me-south-1:control/QFKZ NHJKTIYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower er:il-central-1:control/LX DGZHIMLKLF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower er:eu-central-2:control/TV WGQAXDABKP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/WKXDONNKFYZU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/XKOPEZHNRZWX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/YCMJPARDTMD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/ELLZCEANXPRO</td>
</tr>
</tbody>
</table>
## CT.RDS.PR.11

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.RDS.PR.11        | • NIST 800-53 Rev 5 AC-4  
                      • NIST 800-53 Rev 5 AC-4(21)  
                      • NIST 800-53 Rev 5 SC-7  
                      • NIST 800-53 Rev 5 SC-7(11)  
                      • NIST 800-53 Rev 5 SC-7(16)  
                      • NIST 800-53 Rev 5 SC-7(20)  
                      • NIST 800-53 Rev 5 SC-7(21)  
                      • NIST 800-53 Rev 5 SC-7(4)  
                      • NIST 800-53 Rev 5 SC-7(9)  
                      • PCI DSS version 3.2.1 1.2.1  
                      • PCI DSS version 3.2.1 1.3  
                      • PCI DSS version 3.2.1 1.3.1  
                      • PCI DSS version 3.2.1 1.3.2  
                      • PCI DSS version 3.2.1 1.3.4 | • Limit network access | • US East (N. Virginia)  
arn:aws:controltower:us-east-1:control/SBVAEBQZFXKJ  
• US East (Ohio)  
arn:aws:controltower:us-east-2:control/QPGIONOVKEPL  
• US West (Oregon)  
arn:aws:controltower:us-west-2:control/SAVOXDMXWEWV  
• Canada (Central)  
arn:aws:controltower:ca-central-1:control/VHIQWPULEZ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltow er:ap-sou theast-2: :control/ OXXJQN0BPMSW</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltow er:ap-sou theast-1: :control/ RLRMHNBPZWMZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltow er:eu-central-1::c ontrol/QG PYEJMHJHPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltow er:eu-west-1::cont rol/QLIQBFPMXQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltow er:eu-west-1::c ontrol/QG XFPWMQG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-west-2:control/QPIWXZNGMGLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu:nor-th-1:control/EOHTLNPNLAHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/ZZRRQNGFFMLK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control:IFJMWZQBHUlv</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BLRCFNBJELWJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/OCJRI TLFYKTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/FLMYC PVPBXRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/NAWSD EKFNZXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/FXBSI FWKQXOD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/NHKXBYQLKDDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/HRHVBEGGVKUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/NBWU RONLVXRT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/DIVKMUVKJCWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/NBWU RONLVXRT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/NWDR/VUJIWSMZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/KZ/YGQTBLAIMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/XB/PNREGMWEXZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/AHXQ/JSVNVUIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.RDS.PR.12        | • NIST 800-53 Rev 5 CA-7  
                     • NIST 800-53 Rev 5 SI-2  
                     • PCI DSS version 3.2.1 11.5 | • Prepare for incident response | • US East (N. Virginia)  
                         arn:aws:controltower:us-east-1::control/UDBQC AZJXEAD |
| CT.RDS.PR.12        | • NIST 800-53 Rev 5 CA-7  
                     • NIST 800-53 Rev 5 SI-2  
                     • PCI DSS version 3.2.1 11.5 | • Prepare for incident response | • US East (N. Virginia)  
                         arn:aws:controltower:us-east-1::control/UDBQC AZJXEAD |
| CT.RDS.PR.12        | • NIST 800-53 Rev 5 CA-7  
                     • NIST 800-53 Rev 5 SI-2  
                     • PCI DSS version 3.2.1 11.5 | • Prepare for incident response | • US East (N. Virginia)  
                         arn:aws:controltower:us-east-1::control/UDBQC AZJXEAD |

**CT.RDS.PR.12**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/WGTGNSNVQASQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/SHDPEBVLNYBQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/RVAPYALZJHLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/VQTXJCSDCVNL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ ILUJFEPHTBGC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltow er:eu-central-1:control/OR SIZKYRNJQK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltow er:eu-west-1:control/XSWQZ JIDXEXX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltow er:eu-west-2:control/WVSJO PRGOHET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltow er:eu-nor th-1:control/XLUM DEETUGPN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/SKNYYPGEGZZE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/LXSLBPHQTPFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/WIIXHZHCCJRQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/BEHCRCBSQEYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/SKNYYPGEGZZE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-east-1::control/ZHQOPQLAGHIW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>US West (N. California) arn:aws:controltower:us-west-1::control/XINXZMQZMGBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/ECVBIUCVKDHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/GBNYUHASXVMY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-1::control/GBNYUHASXVMY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: :control/ FILLVTGDVMVAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong>&lt;br&gt; arn:aws:controltower:eu-south-1::control/GVLK LASFFMRA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong>&lt;br&gt; arn:aws:controltower:af-south-1::control/NMXEXSCYFMNR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong>&lt;br&gt; arn:aws:controltower:me-south-1::control/CNDUIYYWZYYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong>&lt;br&gt; arn:aws:controltower:il-central-1::control/UE CQPAZMNEAM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/SIEASJGDLTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/SSMTAROOYQXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/SKKORLKAZA0P</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/GYCLJLXZUCKP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
</tbody>
</table>

CT.RDS.PR.12
## CT.RDS.PR.13

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.RDS.PR.13       | • NIST 800-53 Rev 5 CA-9(1)  
                    • NIST 800-53 Rev 5 CM-2  
                    • NIST 800-53 Rev 5 CM-2(2)  
                    • NIST 800-53 Rev 5 CM-3  
                    • NIST 800-53 Rev 5 SC-5(2)  
                    • PCI DSS version 3.2.1 2.2 | • Improve availability |  
|                    |           |                   | `arn:aws:controltower:us-east-1::control/YPJCCMKZJPTP`  
|                    |           |                   | `arn:aws:controltower:us-east-2::control/LMAWCCZTMZMW`  
<p>|                    |           |                   | <code>arn:aws:controltower:us-west-2::control/MZGZCGGQSWRE</code> |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ca-central-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WJLGTNLDDLJS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-2:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CWTDAXUYNSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZQVRGMYNSXHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu-central-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XVSPZAGNVDDKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/ZTKNQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GKSPGTR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/VSSGL:BOZRHRD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/IIMG:JHZTBAFN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/PKVI:NHPDQTMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/BFSGZKNINMRH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/ANNPBISWZVNU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/UFCJQENIQMLM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/XVXIESOGBUFM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/DOGCTOSZOKKF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/ANNPBISWZVNU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-east</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/OPTPM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AIZQHQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TCPYXNOZETYP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-northeast</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CEVYQIDVTPJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/UPMY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ISEYCNAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:af-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/WQOZ JPDGWHXW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1:control/RWYL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YEFWQHCJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:il-central-1:control/WW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CJGJPMADDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:europe-central-2:control/OX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HETOCAIGYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-2:control/PXZO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RCGCQERT</td>
</tr>
</tbody>
</table>
### CT.RDS.PR.14

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.RDS.PR.14</td>
<td>• NIST 800-53 Rev 5 AC-2(4)</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **US East (Ohio)**
  arn:aws:controltower:us-east-1::control/WHWII/FCOKJQR

- **US West (Oregon)**
  arn:aws:controltower:us-west-2::control/LMBFA/GECJTQZ

- **Canada (Central)**
  arn:aws:controltower:ca-central-1::control/AU/SMNRMJJUFG

- **Asia Pacific (Sydney)**
  arn:aws:controltower:ap-southeast-2::
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/HSIZECNPMUMR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/FWIYAMLIPWZL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/UHEVI LPYODIR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/DMXHIDYJDVVWS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/RMQB HTEVKHEX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/NVAQ MMWPIIPQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/XEFJXADORGJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/BMFDQZNVAVYO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3:cont rol/ADDPN HNPIOYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1:cont rol/RBLXD VVKFFT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1:cont rol/PIPVM VSYYOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1:cont rol/SAQBR AUEMBW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sout theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IGMNPKJRFZMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/DHBPZUFKFKMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/KCPAXGBPPFCI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/GHXHZGKQCISF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/CJFLOCVDNWPP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/ZQZLA0UGWCLA</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/XSUJHOIXWMWV</td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/MLNE0NXEGJIQ</td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/QEDAEPENJIPG</td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.RDS.PR.15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Framework**

- NIST 800-53 Rev 5 AC-4
- NIST 800-53 Rev 5 AC-4(21)
- NIST 800-53 Rev 5 CM-8(1)
- NIST 800-53 Rev 5 SC-7
- NIST 800-53 Rev 5 SC-7(11)
- NIST 800-53 Rev 5 SC-7(16)
- NIST 800-53 Rev 5 SC-7(21)

**Control objective**

- Limit network access

**Control API identifiers, by Region**

- **US East (N. Virginia)**
  - arn:aws:controltower:us-east-1::control/BIMBKOKMEZXP
- **US East (Ohio)**
  - arn:aws:controltower:us-east-2::control/BRRGKL0MCWFQ
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/NUDJW4210</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(5)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/KYNERGDEMOGQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/RZHJAVYJQGUI</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/IYNQLANVHZKU</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/NN IILIDPTJRP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/HJRGQ TAYQARY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/OCSRNEWRPYWN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/OZJ0 BRGREXZT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/KTCR RGSRUWGR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/QJOODGPKZYCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/YLCLBFJGFDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/NJJLPGDHHZWO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/BZCJRGOXMRFDB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/OJMDKRVG6BQ</td>
</tr>
</tbody>
</table>

CT.RDS.PR.15 4212
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-wes-t-1:control/MOKLHGMPGKSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-south-east-3:control/DAKSTNVIEZPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-north-east-3:control/YZEEBZWVKNKMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:eu-south-east-1:control/CT.RDS.PR.15</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/EXOHLMGVBSIW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) **arn:**aws:c controltowerer:af-south-1::control/TCJC RQSDCNJK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) **arn:**aws:controltowerer:me-south-1::control/BJSYMTHKMSPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) **arn:**aws:controltowerer:il-central-1::control/MS ITXUPZCMQA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) **arn:**aws:controltowerer:eu-central-2::control/DUALUMXEYPE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/IZYWOFEWAIVN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/FCTFOQPGTEYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/QGBYVDCJSOMV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower:ap-southeast-4::control/CRDTQDJYSRKA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>CT.RDS.PR.16</td>
<td>• CIS AWS Benchmark 1.4 2.3.1</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/FYVNKTVAUTPK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/DBQOVQLCREDJL</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/XRFPHUIOBFJD</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/ANFLBGZRYMCQ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/JCCMUPZAXMMW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/CFYQQQEJAFVF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/NEUJCNUIDIOU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/WLPOBBCCAWEG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-1:control/WLPOBBCCAWEG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/ro-WUYFXYDNPAJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1:control/JPOWMFTTTQPT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-2:control/FWAZWNKRMETW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/WFCLFDSJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/WFCLFDSJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZNEMLOPSODLT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/ODZOB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MQWAVBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/TADJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IKRHQAR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/MZZNT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZGDUSZJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/NPBHB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WQUQZGY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/VKMGPRNMLCBY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/OVSTMOQMNPMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/JCRHCVJEBEBF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/ZDPIPPFFBMJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/ZDPIPPFFBMJA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Control Tower:me-south-1::control/DWHY DBFVSUUJ</td>
</tr>
</tbody>
</table>
|                     |           |                  | • **Israel (Tel Aviv)**
|                     |           |                  | arn:aws:controltower:il-central-1::control/HJKGUNVPDRFG |
|                     |           |                  | • **Europe (Zurich)**
|                     |           |                  | arn:aws:controltower:eu-central-2::control/IUFBLXGRTWQL |
|                     |           |                  | • **Europe (Spain)**
|                     |           |                  | arn:aws:controltower:eu-south-2::control/YLBSAETGREA |
|                     |           |                  | • **Asia Pacific (Hyderabad)**
|                     |           |                  | arn:aws:controltower:ap-south-2::control |
### CT.RDS.PR.17

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.RDS.PR.17        | • NIST 800-53 Rev 5 CA-7  
                      • NIST 800-53 Rev 5 SI-2  
                      • PCI DSS version 3.2.1 11.5 | • Prepare for incident response | • US East (N. Virginia)  
                      arn:aws:controltower:us-east-1::control/SHNJO PQUEZH0H |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/XKWPQGYZXAMK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/YHBMVYOGUEDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/CBUKUNUOEILM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/TKAIVNVOZEOP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/ODRTWYAHZKPB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:endpoints:control/ASUNKGVVFPXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:endpoints:control/QAIFZDEJQMXLG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:endpoints:control/QAIFZDEJQMXLG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:endpoints:control/PBDUVVQCOKDV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/UBRP EHEOKHP0</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/OUWNJTTOMXIL</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/QOUOAILPPGLH</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/WECTXDDEGGMV</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/UBRP EHEOKHP0</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::cont rol/VIYXJ SVPVORD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:c ontroltow er:us-wes t-1::cont rol/IZDMI ZEKSPDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltow er:ap-eas t-1::cont rol/EQZLU ZVLFBMG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltow er:ap-sou theast-3: :control/ WUFEZ0IZMXBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltow er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control/MPZBVXOJLRKF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower.eu-south-1:control/EQURNFTUNIJC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:controltower.af-south-1:control/GZZZWRTEHCU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (Bahrain) arn:aws:controltower.me-south-1:control/BJRNVOLHB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Israel (Tel Aviv) arn:aws:controltower.il-central-1:control/WFCMRGLIGBCW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/BEOEOCVQSEY0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/UKQUAWKOJNPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/USENKGRNCKYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/JZWIMKHAWARU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
</tbody>
</table>

"AWS Control Tower User Guide"
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.RDS.PR.18</td>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td>• Prepare for incident response</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td>• Prepare for incident response</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 11.5</td>
<td>• Prepare for incident response</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-t-1:control/HMGIGLGDRMZO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-t-2:control/KRKPUQSNVYD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-t-2:control/GGCJMPCKNQG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/MKVLLPSIEPIO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/TXDOP00EF0GJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/KOPCQNKSYEUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/HTOVAPFGMPCJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/RQCDU RNMVVTs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-wes t-2::control/KMKTH WDXNXIM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/QZFG DRVZILTN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south th-1::control/YKUE LCLADAOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/YHSXDDXXWITQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/PFPVEOVUMUUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/GFMLORENIRNTC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/GLYKLGYIXELE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/SAJRNAHECEJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-china:control/CT.RDS.PR.184232</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-east-1:control/THYPQJUMLHKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltowerer:ap-southeast-3:control/QNTSSYLVYSBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltowerer:ap-northeast-3:control/GXNWDDJVUIVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltowerer:eu-south-1:control/DKDJTNLQAPPR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltowerer:af-south-1:control/</td>
</tr>
</tbody>
</table>

CT.RDS.PR.18
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/CWZD RBGTMCFC</td>
</tr>
<tr>
<td>• <strong>Middle East</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DUKU HXPYNTTR</td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:il-central-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YE ZGGAFXIVYJM</td>
</tr>
<tr>
<td>• <strong>Europe (Zurich)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SQ ATJDIQJNBP</td>
</tr>
<tr>
<td>• <strong>Europe (Spain)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EAEI EZEIHAFS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.RDS.PR.19</td>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td>• Prepare for incident response</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-2</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/QWXNKLRWSHXQ</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 11.5</td>
<td></td>
<td></td>
<td>ontroltower:us-east-2::control/XUPYDLWHDGC</td>
</tr>
<tr>
<td>US East (Ohio)</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/PJXOOIPSMNDA</td>
</tr>
<tr>
<td>US West (Oregon)</td>
<td></td>
<td></td>
<td>ontroltower:us-west-2::control/CA-Central-1::control/XO0IPSMSNDAG</td>
</tr>
<tr>
<td>Canada (Central)</td>
<td></td>
<td></td>
<td>ontroltower:us-central-1::control/PJXO0IPSMSNDAG</td>
</tr>
<tr>
<td>Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>ontroltower:us-southeast-2::control/PJXO0IPSMSNDAG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AKURSKMXIRNZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LYWQA0JFKFQC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/XZSPKESDKKWI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/ZSLSJYMDJBAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:control/OYIGFYNODQCL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) <strong>arn:aws:controltower:eu-north-1::control/YBVH YRANLTFI</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) <strong>arn:aws:controltower:ap-south-1::control/TQMK LIDIAQMF</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) <strong>arn:aws:controltower:ap-northeast-2::control/ZPVWJRXNQPQEV</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) <strong>arn:aws:controltower:ap-northeast-1::control/KZPGJXHYHQI</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) <strong>arn:aws:controltower</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **South America (São Paulo)**
  arn:aws:controltower:sa-eas:t-1::control/YXSNO
  ECRRPCO

- **US West (N. California)**
  arn:aws:controltower:us-wes:t-1::control/TGIEX
  SEQNZVU

- **Asia Pacific (Hong Kong)**
  arn:aws:controltower:ap-eas:t-1::control/LNRLB
  VGINMLU

- **Asia Pacific (Jakarta)**
  arn:aws:controltower:ap-southeast-3:CT.RDS.PR.19

4239
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BXCUKDZSYLOG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/KZEWMMUENGWQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/VJKMQYKKNXFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/WKBAYNVADIUJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/ZMSKYBINPWUQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                   | • **Israel (Tel Aviv)**  
|                    |           |                   | *arn:*aws:controltower:*il-central-1:*control/NL*  
|                    |           |                   | *arn:*aws:controltower:*il-central-1:*control/NL*  
|                    |           |                   | **BLQIJTVACH**  
|                    |           |                   | • **Europe (Zurich)**  
|                    |           |                   | *arn:*aws:controltower:*eu-central-2:*control/*IJ*  
|                    |           |                   | **RUYYUBPGLLE**  
|                    |           |                   | • **Europe (Spain)**  
|                    |           |                   | *arn:*aws:controltower:*eu-south-2:*control/*YFBP*  
|                    |           |                   | **WSKFZXSI**  
|                    |           |                   | • **Asia Pacific (Hyderabad)**  
|                    |           |                   | *arn:*aws:controltower:*ap-south-2:*control/*ERNA*  
|                    |           |                   | **IMFFVIWZ**  
|                    |           |                   | • **Middle East (UAE)**  
|                    |           |                   | *arn:*aws:controltower:*me-central/*control/*me-central*  

CT.RDS.PR.19
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.RDS.PR.2</td>
<td>• CIS AWS Benchmark 1.4 2.3.1</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/MQISZILRTSFB</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-17(2)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/UPOYGSXRLXUQ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-2(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td>US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/SWFLJNEBRLPT</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td>Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/OHBTTGZTMHOB</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/LNDHGBLTEXAL</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(9)</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/KOSPQCBQOVFN</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-10</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:de-de:control/IA51CT.RDS.PR.24243</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td></td>
<td>er:eu-central-1::control/PRGUXERBXDAQ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/YVRQVGLIXYVC</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/YEQRARYEJPWA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control:TCGIZHXW0EHQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control:GHYSHEHSCDNB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3:control/HRRACFGWIYQK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1:control/TRBXUHZVTQAJ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/ELDGFUEABECL

• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/ZNQTIVZBEPPV

• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/ZNQTIVZBEPPV

• Europe (Milan) arn:aws:controltower:eu-south-1::control/ZNQTIVZBEPPV
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td>trol/DJNV NBXZYBEQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/SIATJXQTJBLB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1::control/PKEZZVUBPQNX</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv) arn:aws:controltower/il-central-1::control/JWACQDFHVGTZ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/KIUDKG0CBCKH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/JFVJGUVPNIJF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/XROOMLOUYAFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/UTCWVNIJWHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4::control/BKSOTGWHUEPF</td>
</tr>
</tbody>
</table>
### CT.RDS.PR.20

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.RDS.PR.20        | • NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(21)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-7(5)  
• PCI DSS version 3.2.1 1.2.1  
• PCI DSS version 3.2.1 1.3.1  
• PCI DSS version 3.2.1 1.3.2  
• PCI DSS version 3.2.1 1.3.4  
• PCI DSS version 3.2.1 2.2 | • Limit network access | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/MDWFCNUYEZKH  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/HRHVMSEIAPUA  
• **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/DCGLYOBFDPL  
• **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/RZBFFTPJ0GCG |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/RKTXRGUXFWXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/QKDQFKMGVHSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/NL IBRFKTPNGZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/SMMMDVYGDPEN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-2:control/JCFEL HAYCQWT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower eu:eu-nor th-1:control/FGJJ SXEZBZCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower eu:ap-south-1:control/PJNM BTVRXJJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower eu:ap-northeast-2:control/JLKKRIKEPPCY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower eu:ap-northeast-1:control/JLKKRIKEPPCY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UFTOXCOOXJTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/QOQDDPHNUIBX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/PYAFZHJVXJDW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/JPCMKZJLBQDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1:control/KTYTTDOYXIMZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/AZTJJPGJ0FE0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/CBIDNXQGCKKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/XISVVPFGPUOP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/ZNMDTUXUOQZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/ZNMDTUXUOQZX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/CSVHKOUFHDG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/UWGFBJXQKIZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/PI DUQUOPTVRY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/IOPG ZLIWNWGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/CT.RDS.PR.204254</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| CT.RDS.PR.21        |           | Protect configurations | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/EITXJLkftqdp |
<p>|                     | NIST 800-53 Rev 5 CA-9(1) |  |  |
|                     | NIST 800-53 Rev 5 CM-2 |  |  |
|                     | PCI DSS version 3.2.1 2.1 |  |  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/IPSTN JIEWMCJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/VPLSU HTSSKVN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/EH EHUGUMGNMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/GOGYCLISXJIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ EIXIRAFPVPAO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:control:er:eu-central-1::control/AM PSQWJUTPB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:control:er:eu-west-1::control/ROL/RORRJ YOCKMFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:control:er:eu-west-2::control/ROL/UUOV RJHMURS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:control:er:eu-north-1::control/EMHU DINOARAM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/AONMPRGRMUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/TJWPIOJAICUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/XJJPKIGGEEXG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/RUOZMJSAADVLM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:ap-south-2::control/PRGRMUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:s-a-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ANABX, NFAQ01G</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>t-1:control/KVUPQ, JROGLHO</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/DHSGT, IVFXFLI</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>theast-3:control/CFRTFTJ0ZPRW</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td>(Osaka)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: control/ HFOWJUBMOZXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) **arn:**aws:controltower:eu-south-1:control/JWDRULGYQLUL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) **arn:**aws:controltower:af-south-1:control/PLHGNFBDWEBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) **arn:**aws:controltower:me-south-1:control/RGFWRMBSGIJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) **arn:**aws:controltower:il-central-1:control/control/LBIBZRIQMT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong>&lt;br&gt;arn:aws:controltower:eu-central-2::control/GFJCUGIOTNUX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong>&lt;br&gt;arn:aws:controltower:eu-south-2::control/CSKCEKSCEMJZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong>&lt;br&gt;arn:aws:controltower:ap-south-2::control/HPXNNRRQXNXI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong>&lt;br&gt;arn:aws:controltower:me-central-1::control/TRHZBDVQRBFC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.RDS.PR.22</td>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td>Protect configurations</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/RPMTGTPXFHVA</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>US East (Ohio)  arn:aws:controltower:us-east-2::control/SUICXVEFWGTF</td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 2.1</td>
<td></td>
<td>US West (Oregon) arn:aws:controltower:us-west-2::control/IGEKWWYBNQPL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong> arn:aws:controltower:ca-central-1::control/NI ABCZCSXRW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2:control/SIJETKICNYSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1:control/QQNXZYVQBCA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1:control/EE ZWQXHRKSYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/VCVBYURVMJWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control/LUZHXFABWGPZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/WCAPGBYZBASC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/HYNXJZMOFCXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control/BEJUKSCJOYQQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/OPPFSUXBZGNN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/UNHYCWAVERQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/BOBJFVMQPNFA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-1::control/ZGRERLGFHIXR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-south-1::control/CT.RDS.PR.224265</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/PNYCUZBPTAYS</td>
</tr>
</tbody>
</table>
|                    |           |                   | • **Asia Pacific (Jakarta)**  
|                    |           |                   | arn:aws:controltower:ap-southeast-3:control/YZCWKMNAUEXZ |
|                    |           |                   | • **Asia Pacific (Osaka)**  
|                    |           |                   | arn:aws:controltower:ap-northeast-3:control/SWNLNNMLXINQ |
|                    |           |                   | • **Europe (Milan)**  
|                    |           |                   | arn:aws:controltower:eu-south-1:control/UGDMTHYBNQGN |
|                    |           |                   | • **Africa (Cape Town)**  
<p>|                    |           |                   | arn:aws:controltower:af-south-1:control/THYBNQGN |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/MZRA JDTDFGWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:me-south-1::control/OWPJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IIXMSYXL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:il-central-1::control/PF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AKFIEKPAUL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:eu-central-2::control/QO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RNHGGYQQUS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:eu-south-2::control/LWPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NTJGDTSG</td>
</tr>
</tbody>
</table>
### Control API identifiers, by Region

- **Asia Pacific (Hyderabad)**
  - arn:aws:controltower:ap-south-2::control/KAYUBUDGENWW
- **Middle East (UAE)**
  - arn:aws:controltower:me-central-1::control/XMFPDXVIZDTX
- **Asia Pacific (Melbourne)**
  - arn:aws:controltower:ap-southeast-4::control/AKPEAYGURAXN

### CT.RDS.PR.23

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.RDS.PR.23       | • NIST 800-53 Rev 5 AC-21 | • Limit network access | • US East (N. Virginia)
  - arn:aws:c
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>ontrolltower:us-east-1::control/PWBOAFLALALP</td>
</tr>
<tr>
<td>AC-3</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-1::control/OULNFNUJHYOY</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/BSINZXEGCDDE</td>
</tr>
<tr>
<td>AC-3(7)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/SMCLOXFTGGJR</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>:control/ODZTKLOPEVYA</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/AROTJYKQNBWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/BCJOWGCTPYMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/NNNWMYHHRLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/FTLPWEBBYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AQYGA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZWHDBUS</td>
</tr>
<tr>
<td>• South America</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td>er:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/VADBV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PKHYESM</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AMIKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WYRCSQD</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>(Hong Kong)</td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/WHLMO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZJDXYGQ</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/OXCYOZPUWJYP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3: :control/AVEIAINBMSJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/GGFMCMFBGGYK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/0JJPXBDLLIVT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/NGMGOKDLFZIX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/FF IYPSNWVNNZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/FR XXRRKGQQKV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/NDCX NZRTTIHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/YAQQ WPIJLYKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/FF IYPSNWVNNZ</td>
</tr>
</tbody>
</table>
### CT.RDS.PR.24

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.RDS.PR.24        | • CIS AWS Benchmark 1.4 2.3.1  
          • NIST 800-53 Rev 5 CA-9(1)  
          • NIST 800-53 Rev 5 CM-3(6)  
          • NIST 800-53 Rev 5 SC-13  
          • NIST 800-53 Rev 5 SC-28  
          • NIST 800-53 Rev 5 SC-28(1) | • Encrypt data at rest |  
          • US East (N. Virginia)  
              arn:aws:controltower:us-east-1::control/GFMSMJJAELTVU  
          • US East (Ohio)  
              arn:aws:controltower:us-east-2::control/TENQAWFXTXMFK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/GWMSFQBJQUIL</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/VI DEBVCBMMHE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/UGDACEBUCTME</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/SUXNKMQMOMQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eucentral-1::control/ULFMTWYBJBHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-wes:control/KCHAUDQMSCNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-wes:control/DELGU CWUWHUC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north:control/JZPW XKQZQLJD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south:control/VXFC DUYXIIEX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/ SBVCZOZVTNSM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/ HNUUDLAMFESZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/ZIGYAICEYDYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/MZOWKNBAGWMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:northeast-2:control/ CT.RDS.PR.244278</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:us-wes t-1::cont rol/OZIQM HPFNNUDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower er:ap-eas t-1::cont rol/NDNGNJIVJRO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower er:ap-southeast-3:control/OTPOYEIELITW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower er:ap-northeast-3:control/GCOSKKLRMNIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower er:europe-southeast-1:control/CT.RDS.PR.24</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/OKHI GZARDBVN</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/PINC LJDJZDRE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/OAEX NGTGWQQZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/MW ZFGWBFEHJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/OX PVB0GE0CBY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/TKHIAGEFUESQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/IYWXHEMRRBHL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1:control/YP TCDXVCWKKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-4:control/YRBXFHAZOBDB</td>
</tr>
</tbody>
</table>
## CT.RDS.PR.25

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.RDS.PR.25</td>
<td>• NIST 800-53 Rev 5 AC-2(4)</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/JURZAEDZNDKU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/MAIRETSDAVZB</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6(9)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/MMEIVHRLITAO</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/LOBRESBCCMGM</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/BLFCABKJKCSA</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/YZYQYLIHQYM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/LB A0BDKAGHAF</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/JGEKIJTIJOSK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes-t-2:control/zwyuqwfmkuzl</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu:eu-north-1:control/goqlmdracqck</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap:south:th-1:control/izgupubatws0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap:northeast:th-2:control:jbpghioldpqak</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap:northeast:th-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RTJTOJNOFCR</td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/YRAE5YFGCCEX</td>
</tr>
<tr>
<td>South America</td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AQDTQRHKAVWU</td>
</tr>
<tr>
<td>US West (N.</td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/OYUJWHZRFAZ</td>
</tr>
<tr>
<td>Asia Pacific (Hong</td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td>Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/GAGQXONTSUSO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/ RJUTO0ZNCKEA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/ PUEKRODEBBUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/UWTYXFPZQYBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/JMCDFXUFTOUV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:cCT.RDS.PR.254286</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower me-south 1::control/CVFI BPQFE0QP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/GJ BEJJCSWGUS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/VU IXASYJRGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/NOYM FJNNHNHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control</td>
</tr>
</tbody>
</table>


## AWS Control Tower User Guide

### Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---
CT.RDS.PR.26  |  |  | 

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.RDS.PR.26</td>
<td>NIST 800-53 Rev 5 AC-17(2)</td>
<td>Encrypt data in transit</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/EKWKLGPDQJLB</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 IA-5(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CT.RDS.PR.26

- **Middle East (UAE)** arn:aws:controltower:me-central-1::control/VEFXX0GWBCVW
- **Asia Pacific (Melbourne)** arn:aws:controltower:ap-southeast-4:control/NLPDDLRTCAKP

4288
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/UOTNWAOXMKFV</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/LJHTU FUWMNSD</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/TRIRJEYQDGYM</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/BVKOXCFDOIKD</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ OJDUBGHKGQQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower er:eu-central-1::control/CX DSOVCVFFYX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower er:eu-west-1::control/LBDII ENDYYKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower er:eu-west-2::control/JWQUN IZDMKFN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower er:eu-north-1::control/EFVU BBUPADGH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/ORBP VZYSXABE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/BZFWVEHFCCFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/FKSFASOSTXNY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower:eu-west-3::control/KBIHFZMXXLDB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong> arn:aws:controltower:ap-south-1::control/ORBP VZYSXABE</td>
</tr>
</tbody>
</table>

---

CT.RDS.PR.26 4291
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower: sa-eas:t-1:control:NYA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower: us-wes:t-1:control:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower: ap-eas:t-1:control:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower: ap-south:t-3:control:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower: ap-nor:control:</td>
</tr>
</tbody>
</table>

- **US West (N. California)**
  - `arn:aws:controltower:us-west-1::control/LHYRJFVNLWQQ`

- **Asia Pacific (Hong Kong)**
  - `arn:aws:controlled:ap-east-1::control/KVYNPGJBLXLU`

- **Asia Pacific (Jakarta)**
  - `arn:aws:controlled:ap-southeast-3::control/MJPFBRIDKHB`

- **Asia Pacific (Osaka)**
  - `arn:aws:controlled:ap-northeast-1::control/`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3: :control/ UQKHNVHGPOWR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltowerer:eu-south-1:control/AKZHYZVLMTUU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltowerer:af-south-1:control/VWVTYKUVAGHJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltowerer:me-south-1:control/CKZDUOFIWTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltowerer:il-central-1:control/WKZTYFCSHZQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/JLVSIDEJQRID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/VLQTLOMEXGXO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/MITOITKKODEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/SKZUDJFZFFJH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>---------------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-6(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>US East (N. Virginia)</strong></td>
<td></td>
<td><strong>US East (N. Virginia)</strong> arn:aws:controltower:us-east-1:control/OJOUVLIKPVKB</td>
</tr>
<tr>
<td></td>
<td><strong>US East (Ohio)</strong></td>
<td></td>
<td><strong>US East (Ohio)</strong> arn:aws:controltower:us-east-2:control/DFWHSEDVILEK</td>
</tr>
<tr>
<td></td>
<td><strong>US West (Oregon)</strong></td>
<td></td>
<td><strong>US West (Oregon)</strong> arn:aws:controltower:us-west-2:control/MRKXJWFJJRQL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/IJ DHMCUQRDCK</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/MXUIEHDNELEL</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/PUUJCQPUHPFB</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/GL CRCNWFYCTG</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/LINDX CLKUMKB</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2::control/MNVMJ RNLXCYQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/BRBG LNWTWVK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/DLNNZRJFAVUQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)  &lt;br&gt;arn:aws:controltower:ap-northeast-1:control/MWMICZ0CTCUU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)  &lt;br&gt;arn:aws:controltower:eu-west-3:control/NRCURWPDRVCJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)  &lt;br&gt;arn:aws:controltower:sa-east-1:control/BYDWLWNZTZXK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)  &lt;br&gt;arn:aws:controltower:us-west-1:control/SLQVRYTYXRQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)  &lt;br&gt;arn:aws:controltower:ap-south-1:control/SLQVRYTYXRQB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/BEGEW HWLTLQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/OFCALLEOFMGC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/XVQBQYGEVFTF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-southeast-1:control/ZTUGXIGBTLID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/HUBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LWDIIVQKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:me-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/GMRDR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OFQMQSNF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:il-central</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tral-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/DY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MVWNFMADTP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tral-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/TK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ODCROLVQJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/WZXN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LDNKNLVX</td>
</tr>
</tbody>
</table>
### Control identifier

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

**CT.RDS.PR.28**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(26)</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/CLDYWYXSBRPJ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>arn:aws:controltower:us-east-1::control/DWDVZTVDTCHU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/SRHWCAMZVXEP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/MC AZDRFZDIGR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-south-east-2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td>:control/YWWI4XG4KBQC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Asia Pacific (Singapore)**
  - arn:aws:controltower:ap-southeast-1::control/YWWI4XG4KBQC

- **Europe (Frankfurt)**
  - arn:aws:controltower:eu-central-1::control/FDPOTDSWRYOB

- **Europe (Ireland)**
  - arn:aws:controltower:eu-west-1::control/KUPNXNDKDFSW

- **Europe (London)**
  - arn:aws:controltower:eu-west-2::control/BGUABLZKUWCW
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu-north-1:control/KSZ0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ILIVLSSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UZSJIYMNZOD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-northeast-2:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YBAVATEFAYXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-northeast-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NSXQRRSJTUDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/JPHFK UYPIXOQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::control/LOYWK HZHISMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::control/BCSWJ PXDTOAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::control/GJSTA LHQPHWY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IDDASOINPLG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>

---

CT.RDS.PR.28
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:il-central-1::control/HO:CGBEZAWUUG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Europe (Zurich)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-central-2::control/DT:ZFNQFQZ0HT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Europe (Spain)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-south-2::control/ZNYYUQNRWHZU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-south-2::control/FEZBFKSMFMNG0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>Middle East (UAE)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:me-central-1::control/MECENTROL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>CT.RDS.PR.29</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CT.RDS.PR.29

Asia Pacific (Melbourne)
arn:aws:controltower:ap-southeast-4::control/XQNYXEKDZIGQ
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • NIST 800-53 Rev 5 SC-7(11) | | | • **US West (Oregon)**
| • NIST 800-53 Rev 5 SC-7(16) | | | arn:aws:controltower:us-west-2::control/EJOWBXOSYQBBZ |
| • NIST 800-53 Rev 5 SC-7(20) | | | • **Canada (Central)**
| • NIST 800-53 Rev 5 SC-7(21) | | | arn:aws:controltower:ca-central-1::control/VNOGLBQJQURAH |
| • NIST 800-53 Rev 5 SC-7(3) | | | • **Asia Pacific (Sydney)**
| • NIST 800-53 Rev 5 SC-7(4) | | | arn:aws:controltower:ap-southeast-2::control/YXBEPOZGPCCV |
| • NIST 800-53 Rev 5 SC-7(9) | | | • **Asia Pacific (Singapore)**
| • PCI DSS version 3.2.1 1.2.1 | | | arn:aws:controltower:ap-southeast-1::control/CYHFJUMZYCFE |
| • PCI DSS version 3.2.1 1.3 | | | • **Europe (Frankfurt)**
| • PCI DSS version 3.2.1 1.3.1 | | | arn:aws:controltower:eu-frankfurt::control/CTRDS.PR.29 |
| • PCI DSS version 3.2.1 1.3.2 | | | • **Europe (Paris)**
| • PCI DSS version 3.2.1 1.3.4 | | | arn:aws:controltower:eu-paris::control/CTRDS.PR.29 |
| • PCI DSS version 3.2.1 1.3.6 | | | • **Europe (London)**
| • PCI DSS version 3.2.1 2.2.2 | | | arn:aws:controltower:eu-london::control/CTRDS.PR.29 |

**Note:** The table continues with more framework details and control API identifiers for additional regions.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/ILPIBLOXEMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/EJFHDHQIXJPH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/WHQKWSITAWHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/EZDGZGLBTFVT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control:ONGMKQSWCAUO</td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/KXQTVNUROGBG</td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/LYJNHZCJMWWU</td>
</tr>
<tr>
<td>South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/FLUUFKXXRUXQ</td>
</tr>
<tr>
<td>US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/FLUUFKXXRUXQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/HDFIQVVMWIKD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controller</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/IUQCAALGVVOT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controller</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/MBCMHNEZLER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controller</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:control/KCZWZONUSFOV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controller</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/FWTK LSNLBFIW</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td>arn:aws:controltow</td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>er:af-south</td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>th-1::control</td>
<td>er:me-south th-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VQDV</td>
<td>QLEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MHZERMPN</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td>arn:aws:controltow</td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>er:il-central</td>
<td>arn:aws:controltow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tral-1::control</td>
<td>er:eu-central tral-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/QS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HFIWJPAOIR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/NVHELPSPKUIW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/NTTOSKRXZHSW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/LCBKQDNBZRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower:ap-southeast-4::control/PPQBRTYVMGRF</td>
</tr>
</tbody>
</table>
## CT.RDS.PR.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.RDS.PR.3        | - CIS AWS Benchmark 1.4 2.3.1 | - Improve availability | - **US East (N. Virginia)**
|                    | - NIST 800-53 Rev 5 CA-9(1) | |  arn:aws:controltower:us-east-1::control/BOMCHCSYCWLF |
|                    | - NIST 800-53 Rev 5 CM-2 | | |
|                    | - NIST 800-53 Rev 5 CM-2(2) | | |
|                    | - NIST 800-53 Rev 5 CM-3 | | **US East (Ohio)**
|                    | - NIST 800-53 Rev 5 CM-3(6) | |  arn:aws:controltower:us-east-2::control/AHXQWQFGSIMC |
|                    | - NIST 800-53 Rev 5 SC-13 | | |
|                    | - NIST 800-53 Rev 5 SC-28 | | **US West (Oregon)**
|                    | - NIST 800-53 Rev 5 SC-28(1) | |  arn:aws:controltower:us-west-2::control/FUPEXQIQKQBN |
|                    | - NIST 800-53 Rev 5 SC-5(2) | | |
|                    | - NIST 800-53 Rev 5 SC-7(10) | | **Canada (Central)**
<p>|                    | - NIST 800-53 Rev 5 SI-7(6) | |  arn:aws:controltower:ca-central-1::control/CKRDGQKNKBEYT |
|                    | - PCI DSS version 3.2.1 2.2 | | |
|                    | - PCI DSS version 3.2.1 3.4 | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • PCI DSS version 3.2.1 8.2.1 | | | • Asia Pacific (Sydney)  
  arn:aws:controltower:ap-southeast-2::control/KGVGCJNUMNIY  
  • Asia Pacific (Singapore)  
  arn:aws:controltower:ap-southeast-1::control/BLXJDLBAERSW  
  • Europe (Frankfurt)  
  arn:aws:controltower:eu-central-1::control/GF FRRVSMQUD  
  • Europe (Ireland)  
  arn:aws:controltower:eu-west-1::control/NOCXM VOIKGCV  
  • Europe (London)  
  arn:aws:controltower:eu-west-1::control/NOCXM VOIKGCV |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/IHCWENDKGMLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/XBFXYKVROTZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/VFYDRPBPNBNT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/WECZXRHKVCNL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/WECZXRHKVCNL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZTRXNVYWDDKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/XDFKDLURAACK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/OFANCHVHOJOV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/HBIGKZQQALFO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/MPNWLSENZAYK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/DHDWZPYMBDIM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/EDXDFSJCWFCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/EYGXDYJGBYNQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/TGAKQPBVZILV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/TGAKQPBVZILV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/WJHS OFNUAKYU</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Israel (Tel Aviv)**
|                    |           |                  | arn:aws:controltower:il-central-1::control/CUMZYTYFVSMQ |
|                    |           |                  | • **Europe (Zurich)**
|                    |           |                  | arn:aws:controltower:eu-central-2::control/YDKULBFMYXBM |
|                    |           |                  | • **Europe (Spain)**
|                    |           |                  | arn:aws:controltower:eu-south-2::control/AOUESOKIFERI |
|                    |           |                  | • **Asia Pacific (Hyderabad)**
<p>|                    |           |                  | arn:aws:controltower:ap-south-2::control/CT.RDS.PR.3 4320 |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.RDS.PR.30        |           | Encrypt data at rest | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/HTFNRVTOKZFX |
|                     | • CIS AWS Benchmark 1.4 2.3.1  
• NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13 |                     | Middle East (UAE)  
arn:aws:controltower:me-central-1::control/CMCSHPTESJDL  
Asia Pacific (Melbourne)  
arn:aws:controltower:ap-southeast-4::control/ZUSHTBGQWBDP |

CT.RDS.PR.30
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIST 800-53 Rev 5 SC-28</td>
<td>•</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/LYXIMVCMGVVYH</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-28(1)</td>
<td>•</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/LBWJETISFWXS</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SC-7(10)</td>
<td>•</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/SBRVREBBUTAB</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 SI-7(6)</td>
<td>•</td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/NQDURR挖掘</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 3.4</td>
<td>•</td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 8.2.1</td>
<td>•</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CT.RDS.PR.30 4322
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/9Q50V3PM93NQ5145S</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/OPDYHNDKSGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/TFADFKFDLROQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2:control/KTIRNVTYTTDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1:control/LNYHPCQCLRBMX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
<td><strong>arn:aws:controltower:ap-south-1::control/SAPC</strong> <strong>IDKSBCKG</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
<td><strong>arn:aws:controltower:ap-northeast-2::control/KXUYQQYUMDE</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
<td><strong>arn:aws:controltower:ap-northeast-1::control/PXFZMHXIYFXO</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Paris)</td>
<td><strong>arn:aws:controltower:eu-west-3::control/HVEMRBONMUAE</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>South America (São Paulo)</td>
<td><strong>arn:aws:controltower:sa-east-1::control/XXXXXXXX</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-east-1::control/UWETEWN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/UKCFV/LHLBNOD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/LFXMN/OXDXAIJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/ZERCEPRQWWGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• East-3:</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:control/MSKZVZDUUYTGJ</code></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-south-1::control/YEH0OVMSRITJ</code></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:af-south-1::control/ZAIUJQNIGHIX</code></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:me-south-1::control/ADPDNJOLNHMG</code></td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:il-central-1::control/WVVDSQJZQIHS</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/YAECKWZF0OZJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/TEINIMWOQEPH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/QTULDYFDWYKD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/JFWYTTFPFPHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.RDS.PR.4</td>
<td>NIST 800-53 Rev 5 AC-2(1)</td>
<td>Use strong authentication</td>
<td>er:ap-southest-4: :control/OIFDZPETJXOW</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 8.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CT.RDS.PR.4**

- **NIST 800-53 Rev 5 AC-2(1)**
- **NIST 800-53 Rev 5 AC-3**
- **NIST 800-53 Rev 5 AC-3(15)**
- **NIST 800-53 Rev 5 AC-3(7)**
- **NIST 800-53 Rev 5 AC-6**
- **PCI DSS version 3.2.1 7.1.1**
- **PCI DSS version 3.2.1 7.2.1**
- **PCI DSS version 3.2.1 7.2.2**
- **PCI DSS version 3.2.1 8.7**

- **US East (N. Virginia)** Arn:aws:controltower:us-east-1:control/QWKDSRVLGQJM
- **US East (Ohio)** Arn:aws:controltower:us-east-2:control/ERWYFDVEMQSK
- **US West (Oregon)** Arn:aws:controltower:us-west-2:control/LNVGZGRHGCBU
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/OM CIGOBMPXNW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/VGJJUWDNFDIK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/NYTWXXKQNPYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/SJ FWAJASSZNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control API</td>
<td>er:eu-wes t-1::control/UGLMT/CZXLMPR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>objective</td>
<td>Europe (London) arn:aws:control/tower/er:eu-wes t-2::control/CCSZFKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:control/tower/er:eu-nor th-1::control/HIBK/WHCHZZB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:control/tower/er:ap-south-1::control/MZCF/SYUEMWM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:control/tower/er:ap-north-east-2::control/MCPSKMJZQIMN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/KNMITJGFKRMB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/NVTALRUXITEZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/BXTYCUJTDLQW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-1::control/HTMSOGEZDTJN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-south-1::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-easteast-1:control/QNCIR BGCPRTM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/PDCYLHOTAIMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/TQTYWXQTGLKU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1:control/QRLJHHAXNPNO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/FUZQ RLUKMSLX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/FUOE EGGFJKSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/TW MLGZJPMUQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/VF CIZSFITDKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/OGXV ZKVWCSZQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.RDS.PR.5</td>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td>• Manage vulnerabilities</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-2(2)</td>
<td>ontroltower:us-east-1::control/UNSIZPXYZKNF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-2(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-2(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 6.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>arn:aws:controltower:us-east-1::control/IPSVYZXQYJLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/ADSPCSQC00JB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/AORICFZECLOS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-south-east-2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/VTWUXLYFANSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/VDGRXWMZIRCD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/BPSCCXVAHRQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1: :control/JPXAHNOKHUZP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2: :control/DOWVUJVPLQQT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • Europe (Stockholm)  
                    |           |                  | arn:aws:controltower:eu-north-1::control/TBCPKYPZUHEB |
|                    |           |                  | • Asia Pacific (Mumbai)  
                    |           |                  | arn:aws:controltower:ap-south-1::control/NJPNGYPGHMDZ |
|                    |           |                  | • Asia Pacific (Seoul)  
                    |           |                  | arn:aws:controltower:ap-northeast-2::control/JEXJDXDQQRFV |
|                    |           |                  | • Asia Pacific (Tokyo)  
                    |           |                  | arn:aws:controltower:ap-northeast-1::control/NXKKTRZGYRZU |
|                    |           |                  | • Europe (Paris)  
<pre><code>                |           |                  | arn:aws:controltower |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/IDQB UPOZZDC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas t-1::control/UIWRD MFPBFQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes t-1::control/UIRFJ IMHOAGF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas t-1::control/XSRLE IOJYKOP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3: CT.RDS.PR.5 4338</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MREYKJJSEDQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/MREYKJJSEDQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/TTGUYMVAMNNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/WHRJIORZFXIL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/ODOFJMTXGTYJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/XQNBEQGNVQWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/FE-DUDFHBPLRA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/CBPI-FXGZJJJNU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/RMEBOYADJYHO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| CT.RDS.PR.6         | • NIST 800-53 Rev 5 CP-10  
                     | • NIST 800-53 Rev 5 CP-6  
                     | • NIST 800-53 Rev 5 CP-6(1)  
                     | • NIST 800-53 Rev 5 CP-6(2)  
                     | • NIST 800-53 Rev 5 CP-9  
                     | • NIST 800-53 Rev 5 SI-13(5)  
                     | • PCI DSS version 3.2.1 3.1  
                     | • Improve resiliency  
                     | CT.RDS.PR.6         | • US East (N. Virginia)  
                     | • PCI DSS version 3.2.1 3.1  
                     | arn:aws:controltower:us-east-1::control/HQQCIEGJNNCIGJ  
                     | • US East (Ohio)  
                     | arn:aws:controltower:us-east-2::control/WKLWHFDYGDIM  
                     | 4341
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>us-west-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JPFWRQLJMFBF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ca-central-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BP TUKBOEYVEC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MKNYWNVXKUKG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BKETESOGWHJT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/YUHGWRMEUFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/LZHVTNVJQMRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/IWNFMAWKEDEV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/PQYEUKWXZFFK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/GFPESZSMOHKB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/AUDENQFLMRAQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/SAJABIITSFKW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/MLKHAVAVKXZM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/SKHLGRRUWSCQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-2::control/2N2DGNRFEA</td>
</tr>
</tbody>
</table>

CT.RDS.PR.6
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/SWMFS RJRGPJD</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-eas</td>
<td>t-1:control/UUNYJ STQKTKJ</td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-sou theast-3:control/AWIDKJQLXFPB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-nor theast-3:control/THYQNOGWHGDY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-sou</td>
<td>th-1:control/</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/EUQF JEGDJXIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/EHAI RIIGWOHC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1:control/ZIER FRYDTVUX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1:control/FZ YLTFYIKQMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2:control/ZT PWDSBGJDAX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2:control/YRALCCMNWDHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2:control/NIOPCRPPKCLH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1:control/ORKATQKFXFVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/NCROQKSZJXGB</td>
</tr>
</tbody>
</table>
## CT.RDS.PR.7

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.RDS.PR.7</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Use strong authentication</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/EFJRJBUAWLRY</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/GPJEV0VCHSF</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/JVVEO1UQB</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.7</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/OPZBMSCIYMQF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/BVMANNHHVIJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/GUBOIKVNFYHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/RVULDNZJGTET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/LHNLJBQEXQKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

---

CT.RDS.PR.7
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/RNNKL RXFOADP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (Stockholm) arn:aws:control:eu-nor th-1:control/BUGV OINBXVCD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Asia Pacific (Mumbai) arn:aws:control:ap-south-1:control/BFMJ VHXZBFLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Asia Pacific (Seoul) arn:aws:control:ap-northeast-2:control/ZEUMSSLIZDTU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Asia Pacific (Tokyo) arn:aws:control:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EGQHMBKZVKBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/UNIXACIXZYGS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/YPOIUYGJSDKUC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/PHVHLPAPJJQGY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-east-1::control/DQCWDYIPYKCU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/VBTYNZMZDTYX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/RXRBKIOMOQMD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-southeast-1::control/YVBI FQKSPPZS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/PZZA SLHINUOG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-central-1::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hobart) arn:aws:controltower:ap-southwest-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Madrid) arn:aws:controltower:eu-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Dakar) arn:aws:controltower:af-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Doha) arn:aws:controltower:me-central-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Wellington) arn:aws:controltower:ap-southwest-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cairo) arn:aws:controltower:af-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Dubai) arn:aws:controltower:me-central-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Berlin) arn:aws:controltower:eu-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Casablanca) arn:aws:controltower:af-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Istanbul) arn:aws:controltower:me-central-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Santiago) arn:aws:controltower:ap-southeast-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cairo) arn:aws:controltower:af-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Dubai) arn:aws:controltower:me-central-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Perth) arn:aws:controltower:ap-southeast-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Dublin) arn:aws:controltower:eu-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Casablanca) arn:aws:controltower:af-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Istanbul) arn:aws:controltower:me-central-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Casablanca) arn:aws:controltower:af-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Istanbul) arn:aws:controltower:me-central-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Perth) arn:aws:controltower:ap-southeast-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Dublin) arn:aws:controltower:eu-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Casablanca) arn:aws:controltower:af-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Istanbul) arn:aws:controltower:me-central-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Casablanca) arn:aws:controltower:af-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Istanbul) arn:aws:controltower:me-central-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Perth) arn:aws:controltower:ap-southeast-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Dublin) arn:aws:controltower:eu-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Casablanca) arn:aws:controltower:af-south-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Istanbul) arn:aws:controltower:me-central-2::control/7VH2589QX475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/7VH2589QX475</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | ontroltower:me-southern:control/JOFZXRMJA
<p>|                    |           |                  | • Israel (Tel Aviv) arn:aws:controltower:il-central:control/RPAEKITMRPNK |
|                    |           |                  | • Europe (Zurich) arn:aws:controltower:eu-central:control/KCOHVMJASNKK |
|                    |           |                  | • Europe (Spain) arn:aws:controltower:eu-southern:control/CXYFUXAJHPQB |
|                    |           |                  | • Asia Pacific (Hyderabad) arn:aws:controltower:ap-southern:control/CT.RDS.PR.74353 |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.RDS.PR.8</td>
<td>NIST 800-53 Rev 5 CP-10, NIST 800-53 Rev 5 CP-6, NIST 800-53 Rev 5 CP-6(1), NIST 800-53 Rev 5 CP-6(2)</td>
<td>Improve resiliency</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/QETNOOVEKOPL</td>
</tr>
<tr>
<td></td>
<td>Middle East (UAE) arn:aws:controltower:me-central-1::control/XXPPJUVQZLJF</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/LFKKWGDNLREGN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| • NIST 800-53 Rev 5 CP-9 | | | **US East (Ohio)**
| • NIST 800-53 Rev 5 SC-5(2) | | | arn:aws:controltower:us-east-2::control/ZFQDCNLBJOYT |
| • NIST 800-53 Rev 5 SI-12 | | | **US West (Oregon)**
| • NIST 800-53 Rev 5 SI-13(5) | | | arn:aws:controltower:us-west-2::control/DJXFRUONYPS |
| • PCI DSS version 3.2.1 10.7 | | | **Canada (Central)**
| • PCI DSS version 3.2.1 3.1 | | | arn:aws:controltower:ca-central-1::control/LOKAOGKSIRIC |
| • Asia Pacific (Sydney) | | | **Asia Pacific (Singapore)**
| | | | arn:aws:controltower:ap-southeast-2::control/GJKUHDAQKCNH |
| | | | **Asia Pacific (Singapore)**
<p>| | | | arn:aws:controltower:ap-southeast-2::control/GJKUHDAQKCNH |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ COJXSEKFZEKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/XJ USTKGWBGZE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/RKNKN LPLALQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/XXUEQ VOEMTBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/DTQGIURTBPQD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/UZSCDCCOFFFDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HODAQWGBTRMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DOHISTPWUUOA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CUKMUVUZEEMY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UZSCDCCOFFFDX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::contr ol/GMWCT VXRUZFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:c ontroltow er:us-wes t-1::contr ol/DHYEN BVXUTBF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:c ontroltow er:ap-eas t-1::contr ol/IMAZH UOGwZDJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:c ontroltow er:ap-sou theast-3: :control/ UKEUAXDWWKOV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:c ontroltow er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AZHRBFNVKFNO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/YBNFFKWIEBFT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/HBYTLQZEWBJU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/CQKACFXDBNPO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/RKBUVYZJMOTF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-central-2::control/EV ZULDEEAKNA</code></td>
</tr>
<tr>
<td>• Europe (Spain)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-south-2::control/NDEGWUPTERC</code></td>
</tr>
<tr>
<td>• Asia Pacific (Hyderabad)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-south-2::control/QPZX SLCTJRTB</code></td>
</tr>
<tr>
<td>• Middle East (UAE)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:me-central-1::control/JA HDSPUAMNCH</code></td>
</tr>
<tr>
<td>• Asia Pacific (Melbourne)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sout</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-4:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ISLVBOAJZVEO</td>
</tr>
</tbody>
</table>

**CT.RDS.PR.9**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.RDS.PR.9         | • NIST 800-53 Rev 5 CA-9(1)  
                     | • NIST 800-53 Rev 5 CM-2  
                     | • NIST 800-53 Rev 5 CM-2(2)  
                     | • PCI DSS version 3.2.1 2.2  
                     | • PCI DSS version 3.2.1 2.4 | • Protect configurations  
                     |                     | • US East (N. Virginia)  
                     |                     | arn:aws:controltower:us-east-1:control/RDSPGIJXTCPR |
|                     |                     | • US East (Ohio)  
                     |                     | arn:aws:controltower:us-east-2:control/LUAEZMOLTOL |
|                     |                     | • US West (Oregon)  
<pre><code>                 |                     | arn:aws:controltower:us-west-2:control/QQXOA GHMVUGH |
</code></pre>
<p>|</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/RG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EVPCAEAOUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TBPEWWYHECGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YKDWRIDUGSBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DQFSWPREWO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1:control/MHMKS JQAYVLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-wes:control/JQYWT SKVECRE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-nor:control/UVOD EWUJJGCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south:control/LWNV YRAQEITA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast:control/PPBPGZVGLKLZM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/DUHRNEVTDQKM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/RWJVBPHGKPEJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/UPFHHERCEHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/DUDBSXSHNGZK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/DUHRNEVTDQKM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east:control/XOJJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CDGSROH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3:control/WZXMVXZMJQSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3:control/NHSQTNZHEZZM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1:control/BDWH SYNRGSRD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/XNLO IHBXMWEG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East</strong> (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/KXFJ PHMTSFCI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/UL JWZCETBUSG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/RP ARTQJEXFFY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/UNAQ ZKVPTXJA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control//CBIQ/KTUVYOG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1:control//UU/CKIWMNBHJH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-east-4:control//XXMTCRFOUHKV</td>
</tr>
</tbody>
</table>

CT.REDSHIFT.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.REDSHIFT.PR.1</td>
<td>NIST 800-53 Rev 5 AC-21</td>
<td>Limit network access</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/YKEAYOGIETJW</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td>US East (Ohio)</td>
<td>arn:aws:controllower:us-east-1::control/RRSNGRKVNEYF</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td>US West (Oregon)</td>
<td>arn:aws:controllower:us-west-2::control/UJZASVUBHZTV</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td>Canada (Central)</td>
<td>arn:aws:controllower:ca-central-1::control/YTHYJJRRXOEZW</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controllower:ap-southeast-2:</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QUVPAAZPCFDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/GFDVQJMASRCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1: :control/YGJYWZCMOADX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1: :control/EIYJRPPVJYQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2: :control/GYTCMRRVKDHE</td>
</tr>
</tbody>
</table>

- PCI DSS version 3.2.1 1.3.2
- PCI DSS version 3.2.1 1.3.4
- PCI DSS version 3.2.1 1.3.6
- PCI DSS version 3.2.1 2.2.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong>&lt;br&gt;arn:aws:controltower:eu-north-1::control/HOLU RSRFKYOJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong>&lt;br&gt;arn:aws:controltower:ap-south-1::control/GAHF LNXXDQAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-2::control/XOLIHOFJYQAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-1::control/XWIEKIDJYHMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/YSTTB PHVAIZB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas t-1::control/TPIGK ZDHGROC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes t-1::control/VLKCI DKWSEGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas t-1::control/KTGZU ACWNWFG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CXPPSTSYRQSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/ NYNGHXGLPTOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1::control/OPDYRIMRTAUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1::control/UMIHKTZTAPAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/DIMRCSYAFFJX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/LN LXEWTLDPFS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/BD LGAVEPWIGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/YDWW SCRJBNCT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/ZNGC FWPHZZZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.REDSHIFT.PR.2    | • NIST 800-53 Rev 5 CP-10  
• NIST 800-53 Rev 5 CP-6  
• NIST 800-53 Rev 5 CP-6(1)  
• NIST 800-53 Rev 5 CP-6(2)  
• NIST 800-53 Rev 5 CP-9  
• NIST 800-53 Rev 5 SC-5(2)  
• NIST 800-53 Rev 5 SC-7(10) | • Improve resiliency | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/VVOXNJWWCUTZ  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/LGKVXBCGWVHZ

**CT.REDSHIFT.PR.2**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 3.1</td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/CX VHRDCRTVRV</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/CMTVPJTIHQTJ</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/KGGVMOPMMNL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/CD AXwwXQMPDQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong>&lt;br&gt;arn:aws:controltower:eu-west-1::control/XYBNZ EOWJKVT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong>&lt;br&gt;arn:aws:controltower:eu-west-2::control/YYWXMD UAJRMJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong>&lt;br&gt;arn:aws:controltower:eu-north-1::control/WLAM YNHXXYYHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong>&lt;br&gt;arn:aws:controltower:ap-south-1::control/CUXJYSQUGQJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/ ZQKOUCATIZVK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/ VJQIDPSRYRRH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/BMHVJQCPZYCS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/TABJCEBJRTAX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/ CT.REDSHIFT.PR.24377</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>S-REDSHIFT-PR.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Asia Pacific (Hong Kong)** arn:aws:controltower:ap-east-1::control/QZYFQVJMMFFG
- **Asia Pacific (Jakarta)** arn:aws:controltower:ap-south-east-3::control/IVYOUWQFCUYQ
- **Asia Pacific (Osaka)** arn:aws:controltower:ap-northeast-3::control/AWOJXMBCSBDF
- **Europe (Milan)** arn:aws:controltower:eu-south-1::control/
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/ESNV KLAVFXDT</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:c</td>
<td></td>
<td>controltow er:af-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/AIZB OYVPCGKE</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:c</td>
<td></td>
<td>controltow er:me-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/IBCJ ZFVMRGAI</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:c</td>
<td></td>
<td>controltow er:il-cen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/PW AHNLYVHXO</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:c</td>
<td></td>
<td>controltow er:eu-cen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/UK MXNAGLWZPR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/JREF GBNJXLVP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-central-1::control/NWNIKXIDOVHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/CT.REDSHIFT.PR.24380</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/CT.REDSHIFT.PR.24380</td>
</tr>
</tbody>
</table>
# CT.REDSHIFT.PR.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.REDSHIFT.PR.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
|                    | • NIST 800-53 Rev 5 AC-2(4) | • Establish logging and monitoring | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/TIGRGIIZLNWY |
|                    | • NIST 800-53 Rev 5 AC-4(26) | | • US East (Ohio)  
ar:aws:controltower:us-east-2::control/BUXRPTPENLDJ |
|                    | • NIST 800-53 Rev 5 AC-6(9) | | • US West (Oregon)  
ar:aws:controltower:us-west-2::control/MPMZYZBUMBNY |
|                    | • NIST 800-53 Rev 5 AU-10 | | • Canada (Central)  
ar:aws:controltower:ca-central-1::control/XBSWWNUQRGVG |
<p>|                    | • NIST 800-53 Rev 5 AU-12 | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/TZMQFTLFIYII</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/NHBUDLMZCDGY</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/DZIEVGGPLAKY</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/YTMBWVLJKBOM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-central-1::control/DZIEVGGPLAKY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control/BYITF EKIBLPM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:cont</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/eu-north-1:control/LLXY EQNHCLQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:con</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/ap-south-1:control/UJYY BSZJHUBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:con</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/ap-northeast-2:control/OCMBDMYSNHXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:con</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/JTZSPKUCZEQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/OFQPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FLHYEMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/AVOAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SY0EDSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/FCEWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KLDUMMV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/LTBAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EGEWNMS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:ap-southeast-3::control/XNBKEABVQQNA</td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:ap-northeast-3::control/SXXALIODJECC</td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-south-1::control/SYWHYDTEGYGB</td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:af-south-1::control/UCTWBOSNRRLBI</td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:af-south-1::control/UCTWBOSNRRLBI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1:control/QUMO.AIIVCBRD</td>
</tr>
</tbody>
</table>
|                    |           |                   | • **Israel (Tel Aviv)**
|                    |           |                   | arn:aws:controltower:il-central-1:control/PR:SABXVVQPVT |
|                    |           |                   | • **Europe (Zurich)**
|                    |           |                   | • **Europe (Spain)**
|                    |           |                   | arn:aws:controltower:eu-south-2:control/SEJV:FMINHDOC |
|                    |           |                   | • **Asia Pacific (Hyderabad)**
<p>|                    |           |                   | arn:aws:controltower:ap-south-2:control |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.REDSHIFT.PR.4    | NIST 800-53 Rev 5 CA-9(1) | Manage vulnerabilities | US East (N. Virginia) <br>arn:aws:controltower:us-east-1::control/RSYQC
|                    | NIST 800-53 Rev 5 CM-2       |                    |                                   |
|                    | NIST 800-53 Rev 5 CP-9       |                    |                                   |
|                    | NIST 800-53 Rev 5 SC-5(2)    |                    |                                   |

**Middle East (UAE)**<br>arn:aws:controltower:me-central-1::control/GNWM

**Asia Pacific (Melbourne)**<br>arn:aws:controltower:ap-southeast-4::control/YLKDNYU
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/XXNRIFUPYIEH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/TIIOZLVHWXUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/NHAZVUYWKCGM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/DJJVYZTHHNQU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sout</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CVUXESSIFPVI</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CSSWYJZRNNT</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:</td>
<td></td>
<td>control/</td>
</tr>
<tr>
<td></td>
<td>controltower</td>
<td></td>
<td>eu-west-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DZFJX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HWGWBCZ</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:</td>
<td></td>
<td>control/</td>
</tr>
<tr>
<td></td>
<td>controltower</td>
<td></td>
<td>eu-west-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KZSEI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OFDFFYQ</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:</td>
<td></td>
<td>control/</td>
</tr>
<tr>
<td></td>
<td>controltower</td>
<td></td>
<td>eu-northern-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NHBH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TNDISQFC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southeast-1::control/JJYK TICMBNII</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/PLWSDPNGNCXK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/SHAQANKLSRUD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/EAQFEOAZNUWH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/2REDSHIFT.PR.44390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::cont rol/RYCBS KQCSOSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong> arn:aws:c ontroltow er:us-wes t-1::cont rol/FLUEZ VKKTETL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong> arn:aws:c ontroltow er:ap-eas t-1::cont rol/MKNPM KKEUYRW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong> arn:aws:c ontroltow er:ap-sou theast-3: :control/ OCSPCZDHKDRV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong> arn:aws:c ontroltow er:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: :control/ DDJAPOKCNVKJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu-south-3::control/QZFM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VCTTFKUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>af-south-3::control/VIBE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CVYZWWS0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>me-south-3::control/SQIZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KBESVMUI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>il-central-3::control/SK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QGXVYSUDGZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                   | • Europe (Zurich)  
                     |           |                   |      arn:aws:controltower::eu-central-2::control/IGBVEZKDDPSK |
|                    |           |                   | • Europe (Spain)  
                     |           |                   |      arn:aws:controltower::eu-south-2::control/UJAYQIWWPSSB |
|                    |           |                   | • Asia Pacific (Hyderabad)  
                     |           |                   |      arn:aws:controltower::ap-south-2::control/GOOMDZFIUXFU |
|                    |           |                   | • Middle East (UAE)  
                     |           |                   |      arn:aws:controltower::me-central-1::control/MTESQPEDNIXA |
|                    |           |                   | • Asia Pacific (Melbourne)  
<pre><code>                 |           |                   |      arn:aws:controltower::ap-south-2::control/GOOMDZFIUXFU |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.REDSHIFT.PR.5</td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td>Limit network access</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>US East (N. Virginia)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/MCWDSPIZQQOJ</td>
</tr>
<tr>
<td></td>
<td>US East (Ohio)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/GNSIRCUDXTGIB</td>
</tr>
<tr>
<td></td>
<td>US West (Oregon)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/KXJMDJMVXXWA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/JNUTHIPQTKAP</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/ICXWYEEBLZWH</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/VEVOVFZBXPGU</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/XZUANQNWUNB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/ BVBKQ CZDVESL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltower:eu-wes t-2::control/ JDKXP TYUTQNJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/ TZHUC KEGTHPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south th-1::control/ JVRP BPFUFXUO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2: :control/ DMBWT CJT WZZK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/DWDPLRTCTQRK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3:control/OKSRLWUXPPFR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1:control/RSKDA DCBGTGR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-1:control/OUGVP YTMYFZA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-south-1:control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PXKSMJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/TAQKKKFUBKOK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/XGNNEXTHJQXK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-southeast-1:control/FWZBXDSFUZQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-southeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/LXLI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/EU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/WBHC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.REDSHIFT.PR.6   |           | Protect configurations | • **Middle East (UAE)** arn:aws:controltower:me-central-1::control/ML KXPOPMOFWL  
|                    |           |                   | • **Asia Pacific (Melbourne)** arn:aws:controltower:ap-southeast-4::control/ZPHIEJALWKIB  |

**CT.REDSHIFT.PR.6**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.REDSHIFT.PR.6   |           | Protect configurations | • **US East (N. Virginia)** arn:aws:controltower:us-east-1::control/XSJEOQVHQNR  
<p>|                    |           |                   | • <strong>US East (Ohio)</strong> arn:aws:controltower  |
|                    | NIST 800-53 Rev 5 CA-9(1) | Protect configurations |  |
|                    | NIST 800-53 Rev 5 CM-2 | Protect configurations |  |
|                    | PCI DSS version 3.2.1 2.1 | Protect configurations |  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-east-2:control/QLHEQGBWIYUX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/ESTXKJJOWTE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/LXRTGBKAVZRM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/KCSAGKLDYNMB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/KCSAGKLDYNMB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/OWUUGCUQFZTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/IZQOHIEKSPL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/RQFUXCXKBWOY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/REMWHXAQOGGLG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/GGTQVUSX00X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/IQZBJZUENUEF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/CYDYXNVPIZPG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/KWCQMVWGTOP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/YGXMJYPAWNUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/CT.REDSHIFT.PR.64403</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>t-1::control/BBVVB</td>
<td></td>
<td></td>
<td>FHIHERG</td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west</td>
<td></td>
<td>t-1::control/BBVVB/GUDFC</td>
</tr>
<tr>
<td>• Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-east</td>
<td></td>
<td>t-1::control/BBVVB/GUDFC/EYJYXRT</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3</td>
<td></td>
<td>t-1::control/BBVVB/GUDFC/EYJYXRT</td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3</td>
<td></td>
<td>t-1::control/BBVVB/GUDFC/EYJYXRT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XKEHDXOAJSOF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/IOUDDDYHBUYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/KSKJRCBRSNUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1:control/ITWHNJQRKRKHM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1:control/NFCFLXUIDXUY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/UDPJFGOSU0GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/VKKSWSROCOHY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/PQYAZYVNBWKB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/TKWVUVUFRRVV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.REDSHIFT.PR.7    | • NIST 800-53 Rev 5 CA-9(1)  
                      • NIST 800-53 Rev 5 CM-2  
                      • PCI DSS version 3.2.1 2.1 | • Protect configurations |  
|                    | CT.REDSHIFT.PR.7 |                      | • US East (N. Virginia)  
                      arn:aws:controltower:us-east-1::control/XTYTGDHUVKCR  
                      • US East (Ohio)  
                      arn:aws:controltower:us-east-2::control/KEUUEIKIJQL0  
                      • US West (Oregon)  
                      arn:aws:controltower:us-west-2::control/QIVJIJP0KQWA |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ca-central-1::control/QJZMCJVYCOGM</code></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-2:control/IJMLIAVPGIOI</code></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-1:control/FFXXGIYUCWRF</code></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-central-1::control/XDROKAR00ZXV</code></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td><code>arn:aws:controltower</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>t-1::control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>role/BDXFK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XOPITMD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>controltower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>t-2::control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>role/QHWQG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OVEKIMH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>controltower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>er:eu-nor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>th-1::control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>role/LHKE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IALJJGLM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>controltower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>er:ap-south</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>th-1::control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>role/WPOF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGASMAFH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>controltower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>er:ap-northeast-2:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDYGEAGGLAKL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/VURRKCWICXXJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower:eu-west-3:control/QPDQNGEIGEQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong> arn:aws:controltower:sa-east-1:control/GOVQUJVCYFX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong> arn:aws:controltower:us-west-1:control/NHUXUYFYFUUYB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltower:ap-southeast-2:control/KWRSQ Fenix</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltowerer:ap-east-1:control/FQVGIHDKJGRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:ap-south-east-3:control/MGZSFFRPJXNJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:ap-northeast-3:control/QPKHXJWAXBEC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:eu-south-th-1:control/ZSFLWFHDEDNW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltowerer:af-south-th-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/PHPN UHCYJIVE</td>
</tr>
<tr>
<td></td>
<td>Brazil</td>
<td>Middle East</td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-east-1:control/TRYRA JFRQSVFZ</td>
</tr>
<tr>
<td></td>
<td>Brazil</td>
<td>Israel (Tel Aviv)</td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/VL LTDCCBFDKE</td>
</tr>
<tr>
<td></td>
<td>Brazil</td>
<td>Europe (Zurich)</td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/RL 0OAQWWOHBT</td>
</tr>
<tr>
<td></td>
<td>Brazil</td>
<td>Europe (Spain)</td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-west-2:control/PVWO HRPFVQOI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.REDSHIFT.PR.8</td>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td>Encrypt data at rest</td>
<td>US East (N. Virginia)</td>
</tr>
</tbody>
</table>

CT.REDSHIFT.PR.8

- Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/MBZBYQHWYYA
- Middle East (UAE) arn:aws:controltower:me-central-1::control/XIOAMLVHEFKA
- Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/HDAJOFBSCAZC
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/EXRBSBIPFHWH</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.5.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>arn:aws:controltower:us-east-1::control/ALDUSRLLWSQYM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/WIYETXTZFNNA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/XQGTRHZSjlAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KLGGBJEKOFDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/VUQFIBCPLZJU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/EMXYSBXDNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/DXPHO EZMTCQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/LQVZJ BEEQCFJ</td>
</tr>
</tbody>
</table>

CT.REDSHIFT.PR.8 4415
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) &lt;br&gt;arn:aws:controltower:eu-north-1::control/TNFU/UZTWVOQS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) &lt;br&gt;arn:aws:controltower:ap-south-1::control/WIWQ/CADWSSNJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) &lt;br&gt;arn:aws:controltower:ap-northeast-2::control/DHAUGOPSEXMD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) &lt;br&gt;arn:aws:controltower:ap-northeast-1::control/HIUBOYXXZ0JV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) &lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3:control/KCHBF RLLRIXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1:control/WUMVG WBHXOSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1:control/BMSSG AJEZHXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1:control/GZGTV BEKIPRM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-south-east-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LLUVKHVTOTYKB</td>
</tr>
</tbody>
</table>
|                    |           |                   | • **Asia Pacific (Osaka)**
|                    |           |                   |  arn:aws:controltower:ap-northeast-3:control/LLUVKHKQOTYKB |
|                    |           |                   | • **Europe (Milan)**
|                    |           |                   |  arn:aws:controltower:eu-south-1:control/TJTGHSRKCAOD |
|                    |           |                   | • **Africa (Cape Town)**
|                    |           |                   |  arn:aws:controltower:af-south-1:control/NHQCIPXIUDQD |
|                    |           |                   | • **Middle East (Bahrain)**
<p>|                    |           |                   |  arn:aws:controltower:me-south-1:control/GACOYCVFQZSR |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/RS VAKLQRLQXN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/BL ZOVYUTPRK W</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/NOLK AZJRJDVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/FWDUXFDXQCQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| CT.REDSHIFT.PR.9  |           | Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/  
YRDLVRNFRHKTV  

• US East (Ohio)  
arn:aws:controltower:us-east-2::control/  
AOSGZRUCDETW  

• NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 3.4 |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • PCI DSS version 3.2.1 3.5.3 | | | • **US West (Oregon)**  
  arn:aws:controltower:us-west-2::control/UHRGJXFBHKWG |
| • PCI DSS version 3.2.1 8.2.1 | | | • **Canada (Central)**  
  arn:aws:controltower:ca-central-1::control/JTOTPCSGXPIF |
| | | | • **Asia Pacific (Sydney)**  
  arn:aws:controltower:ap-southeast-2::control/QEUHIRFGEYFM |
| | | | • **Asia Pacific (Singapore)**  
  arn:aws:controltower:ap-southeast-1::control/VLSFPDQGTLEZ |
| | | | • **Europe (Frankfurt)**  
  arn:aws:controltower: |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/KRQCDKYDLPLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/AYLFLQSRCCSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/SOXMPAPMUVYA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-northeast-1::control/CHKKYPAFDIGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/VAKAVHVJBZRLT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/FGEPIZCARZGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/NSOMCBUHYDTR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/MPEDXGCIBIPD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/BETZTXCWFTGS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/CT.REDSHIFT.PR.94423</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:us-wes台北:control/FRGMP JBMHZJM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower:ap-east:control/QWLP WMZTIW</td>
</tr>
<tr>
<td>Asia Pacific (Hong Kong)</td>
<td>arn:aws:controltower:ap-north:control/BEDTSJXBYPRQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-south:control/BEDTSJXBPYRQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-south:control/BEDTSJXBPYRQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south:control/WMHZVKNJBHHH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/ERJC SGIBWPXPF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> Arn:aws:controltower:af-south-1:control/DJAB ACHZCYDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> Arn:aws:controltower:me-south-1:control/CKWT JOGCUKLB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> Arn:aws:controltower:il-central-1:control/XI YTJTWXILFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> Arn:aws:controltower:eu-central-2:control/KC IJAYENPABP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/KZEY ENTRZSQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/NXYU JNVDTBZP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/ZV IYJKXRKFLQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower:ap-southeast-4::control/MEFKMQGDLMBW</td>
</tr>
</tbody>
</table>
## CT.S3.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.S3.PR.1</td>
<td>• CIS AWS Benchmark 1.4 2.1.3</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• CIS AWS Benchmark 1.4 2.1.5</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/HOHCXWHXKJEM</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/FKMTMPNCBGTR</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/BAGVBAYKIDPQ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/SDAWDCRWPYPYAZ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-9(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| NIST 800-53 Rev 5 CP-6 | • Asia Pacific (Sydney)  
| NIST 800-53 Rev 5 CP-6(1) | • Asia Pacific (Singapore)  
ar:n:aws:c ontrolto wner:ap-sou theast-1: :control/ OQJNJIJYYDVN |
| NIST 800-53 Rev 5 CP-6(2) | • Europe (Frankfurt)  
ar:n:aws:c ontrolto wner:eu-cen tral-1::c ontrol/KX JQNRHPLFXJ |
| NIST 800-53 Rev 5 CP-9 | • Europe (Ireland)  
ar:n:aws:c ontrolto wner:eu-wes t-1::cont rol/INPHVGNNYWHE |
| NIST 800-53 Rev 5 SC-12(2) | • Europe (London)  
ar:n:aws:c ontrolto wner:eu-lon don-1: :control/ WRGFYNFNMLEH |
<p>| NIST 800-53 Rev 5 SC-13 | | | |
| NIST 800-53 Rev 5 SC-28 | | | |
| NIST 800-53 Rev 5 SC-28(1) | | | |
| NIST 800-53 Rev 5 SC-5(2) | | | |
| NIST 800-53 Rev 5 SC-7 | | | |
| NIST 800-53 Rev 5 SC-7(10) | | | |
| NIST 800-53 Rev 5 SC-7(11) | | | |
| NIST 800-53 Rev 5 SC-7(16) | | | |
| NIST 800-53 Rev 5 SC-7(20) | | | |
| NIST 800-53 Rev 5 SC-7(21) | | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>er:eu-wesk-2:control/TGRGAWCJGDOT</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Europe (Stockholm) arn:aws:controltower:eu-north-1:control/WRHS EHIGMPNL
- Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/DVQU CYQSSVYJ
- Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/YKBYY00RVYDQ
- Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>:control/HCYQILOQAJGP</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td>Europe (Paris) arn:aws:controltower:eu-west-3::control/LHQHRBBJLOGX</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.5.3</td>
<td></td>
<td></td>
<td>South America (São Paulo) arn:aws:controltower:sa-east-1::control/GZSJPOJMETOS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>US West (N. California) arn:aws:controltower:us-west-1::control/UQDZOYXHSTJV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/HUGVRCBOTHNS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower me-south th-1::control/RYKI JHRMZVMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/YU WCIXIDGEIX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/HY LHRTALKCXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/MKKRYHXWDZFZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control</td>
</tr>
</tbody>
</table>

CT.S3.PR.1 4432
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.S3.PR.10</td>
<td>NIST 800-53 Rev 5</td>
<td>Encrypt data at rest</td>
<td>US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>AU-9</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/AZDYTEJYRMPN</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CA-9(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CM-3(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SC-12(2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Middle East (UAE) arn:aws:controltower:me-central-1::control/LUNHKATYXLDY

Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/VMUQKKURTFOH
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| NIST 800-53 Rev 5 SC-13 | | | **US East (Ohio)**
| NIST 800-53 Rev 5 SC-28(1) | | | **US West (Oregon)**
| NIST 800-53 Rev 5 SC-7(10) | | | arn:aws:controltower:us-west-2::control/NAJMVANQPXLA |
| NIST 800-53 Rev 5 SI-7(6) | | | **Canada (Central)**
| PCI DSS version 3.2.1 10.5 | | | arn:aws:controltower:ca-central-1::control/KLYRVHDTSNQ |
| PCI DSS version 3.2.1 10.5.2 | | | **Asia Pacific (Sydney)**
| PCI DSS version 3.2.1 3.4 | | | arn:aws:controltower:ap-southeast-2::control/XUAWJGYSKOU |
| PCI DSS version 3.2.1 3.5.3 | | | **Asia Pacific (Singapore)**
<p>| PCI DSS version 3.2.1 8.2.1 | | | arn:aws:controltower |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ XOELWGITRRJP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltow er:eu-central-1::control/HW UKCNBPQJPH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltow er:eu-west-1::control/WHMUOFUNYXLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltow er:eu-west-2::control/YJTFS UPCWLSG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltow er:eu-nor th-1::control/IXTX SHXVNUZM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/ZVWFNYUTBJQX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/AJZIPUOMEHPW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/SDKAAURVKROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/LOBZZYSXKUEK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:sa-eas t-1::cont rol/PJFOM SANLDYK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong> arn:aws:c ontroltow er:us-wes t-1::cont rol/QVGKLBYATRG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong> arn:aws:c ontroltow er:ap-eas t-1::cont rol/UNAIRGRMSYDE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong> arn:aws:c ontroltow er:ap-sou theast-3:control/SZTUWIPCDHJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong> arn:aws:c ontroltow er:ap-nor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:control/IGACBRUIDHRL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1:control/TRPK HIGMYXAO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1:control/NPHP UZYHVOIY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1:control/EXSN HHJHWXIO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1:control/RZ GKGHPDNNWZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/ZQTNVAGIGWJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/SKGFYRDINXPI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/HWTOUVQXQKRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/QZDCTXCJVPY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### CT.S3.PR.11

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.S3.PR.11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• CIS AWS Benchmark 1.4</td>
<td>• Improve availability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-9(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (N. Virginia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-east-1::control/EUDRJBCNBNSX</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-east-2::control/QTKNBUWIZPYQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-west-2::control/YMXXFEAZKVCS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| • PCI DSS version 3.2.1 10.5.5 |           |                  | • **Canada (Central)**  
ar:n:aws:c ontroltow er:ca-cen tral-1::c ontrol/CR TXZSITMULU  
|                      |           |                  | • **Asia Pacific (Sydney)**  
ar:n:aws:c ontroltow er:ap-sou theast-2::control/ EUTFKNVDBWID  
|                      |           |                  | • **Asia Pacific (Singapore)**  
ar:n:aws:c ontroltow er:ap-sou theast-1::control/ NFQVYRNQZULR  
|                      |           |                  | • **Europe (Frankfurt)**  
ar:n:aws:c ontroltow er:eu-cen tral-1::c ontrol/KY ZJOMCMHGSG  
|                      |           |                  | • **Europe (Ireland)**  
ar:n:aws:c ontroltow er:
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/OUGCA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GTCCFY</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:</td>
<td></td>
<td>er:eu-wes t-2::control/IHLVK</td>
</tr>
<tr>
<td></td>
<td>control:</td>
<td></td>
<td>ARQYKMH</td>
</tr>
<tr>
<td></td>
<td>er:eu-wes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:</td>
<td></td>
<td>arn:aws:control:eu-nor</td>
</tr>
<tr>
<td></td>
<td>control:</td>
<td></td>
<td>th-1::control/DEHW</td>
</tr>
<tr>
<td></td>
<td>er:eu-nor</td>
<td></td>
<td>LVENFBQF</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td>arn:aws:</td>
<td></td>
<td>arn:aws:control:ap-south</td>
</tr>
<tr>
<td>(Mumbai)</td>
<td>control:</td>
<td></td>
<td>th-1::control/YRTT</td>
</tr>
<tr>
<td></td>
<td>er:ap-sou</td>
<td></td>
<td>YKIGHXEJ</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td>arn:aws:</td>
<td></td>
<td>arn:aws:control:ap-northeast-2:</td>
</tr>
<tr>
<td>(Seoul)</td>
<td>control:</td>
<td></td>
<td>:control/CCSEYYSAWFKX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/AQQOPEFIXRLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/LGLAYYIEOEEN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/QMKXN BUDMJAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/UVHOTRUS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-northeast-1::control/AQQOPEFIXRLY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:ap-eas t-1:contro l/VYSIL MRAEEEXW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:c ontroltower er:ap-sou theast-3: :control/ TISETCVQZY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:c ontroltower er:ap-nor theast-3: :control/ CICQLRNABRT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:c ontroltower er:eu-sou th-1:control/AOJR FFGDXYLF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Africa (Cape Town) arn:aws:c ontroltower er:af-sou th-1:con</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:me-south-1::control/CCLRZDGTBJQX</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:il-central-1::control/CXDTNMKWUDQA</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-central-2::control/WN GIRGIYRUQC</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-southern-2::control/AGJXNIDFTLTH</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>CT.S3.PR.12</td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2:control/JAQQLPHVMOTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1:control/YJTKDVALYOKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/ERNMVMJMMUCD</td>
</tr>
</tbody>
</table>

CT.S3.PR.12

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.S3.PR.12</td>
<td></td>
<td></td>
<td>• NIST 800-53 Rev 5 AC-21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Enforce least privilege</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td>AC-3</td>
<td></td>
<td></td>
<td>er:us-east</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td>AC-3(7)</td>
<td></td>
<td></td>
<td>rol/KQMQJZ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>OTZIIIXZ</td>
</tr>
<tr>
<td>AC-4</td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>arn:aws:ccontroltower</td>
</tr>
<tr>
<td>AC-4(21)</td>
<td></td>
<td></td>
<td>er:us-east</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>t-2::control</td>
</tr>
<tr>
<td>AC-6</td>
<td></td>
<td></td>
<td>rol/REMJJC</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>AKGXTVB</td>
</tr>
<tr>
<td>SC-7</td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>arn:aws:ccontroltower</td>
</tr>
<tr>
<td>SC-7(11)</td>
<td></td>
<td></td>
<td>er:us-west</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>t-2::control</td>
</tr>
<tr>
<td>SC-7(16)</td>
<td></td>
<td></td>
<td>rol/FQJPZ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>RMZNTWE</td>
</tr>
<tr>
<td>SC-7(20)</td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>arn:aws:ccontroltower</td>
</tr>
<tr>
<td>SC-7(21)</td>
<td></td>
<td></td>
<td>er:ca-central</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td>SC-7(3)</td>
<td></td>
<td></td>
<td>rol/DK</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>CURRUTBBZV</td>
</tr>
<tr>
<td>SC-7(4)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
<td>arn:aws:ccontroltower</td>
</tr>
<tr>
<td>SC-7(9)</td>
<td></td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td></td>
<td></td>
<td>theast-2:</td>
</tr>
<tr>
<td>3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>:control/OVQWGRGYNWTK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Asia Pacific (Singapore)**
  - arn:aws:controltower:ap-southeast-1::control/EPLOMJLWCU

- **Europe (Frankfurt)**
  - arn:aws:controltower:eu-central-1::control/RZOOIFZZQPXT

- **Europe (Ireland)**
  - arn:aws:controltower:eu-west-1::control/UQEOCKFZKPPV

- **Europe (London)**
  - arn:aws:controltower:eu-west-2::control/OKIBGUFCLMGS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower.eu-north-1::control/YZVB RUKJWFNH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower.ap-south-1::control/YAWOMMVYLVVM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower.ap-northeast-2::control/KBDEDURVZELG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower.ap-northeast-1::control/HVOIYQGUXWZA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower.eu-north-1::control/YZVB RUKJWFNH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-3:control/QXHDS SDRZJGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas t-1:control/YLNFG YIJaweV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes t-1:control/ZOMFZ REHPSFB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas t-1:control/JIPOQ DUYuwIY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south:theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/YNGEMLONSHEF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3::control/ZNLHSTMRAAXLF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1::control/VIENQADPDJBG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/CTUTTRYQQDKZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/UYAPTS00UMSX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Israel (Tel Aviv)**  
arn:aws:controltower:il-central-1::control/HW
BNGRAMKESL |
|                    |           |                  | • **Europe (Zurich)**  
arn:aws:controltower:eu-central-2::control/UW
NPYFLXEDJR |
|                    |           |                  | • **Europe (Spain)**  
arn:aws:controltower:eu-south-2::control/KETG
OTTIJKZN |
|                    |           |                  | • **Asia Pacific (Hyderabad)**  
arn:aws:controltower:ap-south-2::control/ZBRO
MCCS00FU |
|                    |           |                  | • **Middle East (UAE)**  
ar
arn:aws:controltower:me-central

### Control identifier | Framework | Control objective | Control API identifiers, by Region
---|---|---|---
CT.S3.PR.2 | • CIS AWS Benchmark 1.4 3.6  
• NIST 800-53 Rev 5 AC-2(4)  
• NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AC-6(9)  
• NIST 800-53 Rev 5 AU-10  
• NIST 800-53 Rev 5 AU-12  
• NIST 800-53 Rev 5 AU-2 | • Establish logging and monitoring |  
| | | | • Asia Pacific (Melbourne)  
arn:aws:controltower:ap-southeast-4:control/GSOHGIFWYQYG  
| | | | • US East (N. Virginia)  
arn:aws:controltower:us-east-1:control/QUYPCYYEALDZ  
| | | | • US East (Ohio)  
arn:aws:controltower:us-east-2:control/FHMUMMRQQOS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/LWFWEJSLVKV</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/FGDZXUFRPHF</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/MSRDMFGAVCXV</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/BPVHEZBCMBZH</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/MSRDMFGAVCXV</td>
</tr>
</tbody>
</table>
| • NIST 800-53 Rev 5 SI-3(8) | | | **Note:** The text is not complete and some entries are missing.
| • NIST 800-53 Rev 5 SI-4(20) | | | **Note:** The text is not complete and some entries are missing.
| • NIST 800-53 Rev 5 SI-7(8) | | | **Note:** The text is not complete and some entries are missing.
| • PCI DSS version 3.2.1 10.1 | | | **Note:** The text is not complete and some entries are missing.
| • PCI DSS version 3.2.1 10.2.1 | | | **Note:** The text is not complete and some entries are missing.
| • PCI DSS version 3.2.1 10.2.3 | | | **Note:** The text is not complete and some entries are missing.
| • PCI DSS version 3.2.1 10.2.4 | | | **Note:** The text is not complete and some entries are missing.
| • PCI DSS version 3.2.1 10.3.1 | | | **Note:** The text is not complete and some entries are missing.
| • PCI DSS version 3.2.1 10.3.2 | | | **Note:** The text is not complete and some entries are missing.
| • PCI DSS version 3.2.1 10.3.3 | | | **Note:** The text is not complete and some entries are missing.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td>er:eu-central-1::control/LM PLBWVGMUCW</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/NCKAFXMYIELC</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/DLJVQIJWPVWK</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-northeast-1::control/QIGDYVQVHTOY</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/FQXYRRCXLSVY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/UTCUYXQMQXRC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/EEJURBQMFYKK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3:control/EHHLHRRKQKEDX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1:control/QODILHSQEUDJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-2:control/999999999999</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-west-1:control/WTJNF/TFPDVEU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltower:ap-east-1:control/OXUZJ/OSNXUGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Jakarta)</strong> arn:aws:controltower:ap-southeast-3:control/USOLSRKDAXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Osaka)</strong> arn:aws:controltower:ap-northeast-3:control/PAAXMDTZXLCXW</td>
</tr>
</tbody>
</table>
|                    |           |                   | • **Europe (Milan)** arn:aws:controltower:eu-south-1:control/
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/RPRQ AYKWHKVE</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HIPG BZKDQSKN</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FIUQ QJAZYWBP</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XN QIIMLEGLWO</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td>arn:aws:controltower:eu-central-2::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UE ZMQHOAKJKC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/ZDEK KVEJKNZR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/DJAN ZMGCQEVC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/TQ KVAEGMISUA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/HUJNXXTHLDBM</td>
</tr>
</tbody>
</table>
## CT.S3.PR.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.S3.PR.3          | • NIST 800-53 Rev 5 AU-9(2)  
                      • NIST 800-53 Rev 5 CP-10  
                      • NIST 800-53 Rev 5 CP-6(2)  
                      • NIST 800-53 Rev 5 CP-9  
                      • NIST 800-53 Rev 5 SC-5(2)  
                      • NIST 800-53 Rev 5 SI-13(5)  
                      • PCI DSS version 3.2.1 10.5.3  
                      • PCI DSS version 3.2.1 10.5.4  
                      • PCI DSS version 3.2.1 10.7  
                      • PCI DSS version 3.2.1 3.1 | • Optimize costs  
                      • Improve availability | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/WNDCHAPIOWPX  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/NMQZFXOBMETI  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/GGFPMXFOJMKL  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/TWVWTNVBNUJI |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/RRBBSRTV0ULJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/MGLDClUJSXOP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/BGAFYFTFRWB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/PPCZRIWWDCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/UYIJG HTLYXYJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/VKFF QEXOWYRO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/OGNP SHWCNUXG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/ZXKHHALOBMMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZZWZQEUOXAH0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/KEOGAUVAGIWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/AKENCMOJFZIY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/PMCZHCYFLDME</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/JWYSSJGWQIY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/ TRWWVPDNBLSG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/ GDPYJXJBMBRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1::control/UBEKETDJHQDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1::control/BHNCVZBGRDSF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain) arn:aws:controltower:af-south-1::control/BHNCVZBGRDSF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:me-south-1::control/HOYK RAYORWNL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/HA IHUHROMERP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/RR NBHGHJPSLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/WTJT RXBVKECG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control</td>
</tr>
</tbody>
</table>


## CT.S3.PR.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.S3.PR.4          | • NIST 800-53 Rev 5 CA-7  
                      • NIST 800-53 Rev 5 SI-3(8)  
                      • NIST 800-53 Rev 5 SI-4  
                      • NIST 800-53 Rev 5 SI-4(4)  
|                     | • Establish logging and monitoring | • US East (N. Virginia)  
                      arn:aws:controltower:us-east-1::control/YBVXNKBMJYZO |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| PCI DSS version 3.2.1 11.5 | | | • US East (Ohio)  
  arn:aws:controltower:us-east-2::control/NBXPLAFUPVPO  
• US West (Oregon)  
  arn:aws:controltower:us-west-2::control/OQTGURFVOIFX  
• Canada (Central)  
  arn:aws:controltower:ca-central-1::control/ZHYRLECUPJ  
• Asia Pacific (Sydney)  
  arn:aws:controltower:ap-southeast-2::control/TJVPIRLFQNJU  
• Asia Pacific (Singapore)  
  arn:aws:controltower:ap-southeast-2::control/TJVPIRLFQNJU |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
|                    |           |                  | • Europe (Frankfurt)  
arn:aws:controltower:eu-central-1::control/GVTGKIYRXAE  
arn:aws:controltower:eu-west-1::control/HMPQSWNZRQVD  
arn:aws:controltower:eu-west-2::control/ODQFNKZAVERW  
arn:aws:controltower:eu-north-1::control/JRZYMZVABUE |
|                    |           |                  | • Europe (Ireland)  
arn:aws:controltower:eu-west-1::control/HMPQSWNZRQVD  
arn:aws:controltower:eu-west-2::control/ODQFNKZAVERW  
arn:aws:controltower:eu-north-1::control/JRZYMZVABUE |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/AXJXVUNX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/NGFEGYCAZMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/JIKPKVBCQTZZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/FWDLBIQYIXW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:ap-south-4::control/CT.S3.PR.4</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- rol/BLCIO NDMMXME</td>
</tr>
<tr>
<td>US West (N. California)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- rol/AKPXS EGLBYYY</td>
</tr>
<tr>
<td>Asia Pacific (Hong Kong)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- rol/RKMCR SKNQDMF</td>
</tr>
<tr>
<td>Asia Pacific (Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- theast-3:control/XWCENVGPFKVP</td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td>theast-3:</td>
<td></td>
<td>:control/QPOADHZNFITP</td>
</tr>
<tr>
<td></td>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1:control/RQQQDSQMSXSE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/ATMHOATOZICQ</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1:control/HZZGKGDJSMKW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Israel (Tel Aviv)</td>
<td>arn:aws:controltower:il-central-1:control/NKSQUEXX0XSL</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2::control/TGWKWNMHKGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/OWRWJJMCRCQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/HPSJSQXKSZHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/LELWUYTFETVV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower</td>
</tr>
</tbody>
</table>

CT.S3.PR.4 4472
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.S3.PR.5</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Enforce least privilege</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (N. Virginia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-east-t-1::control/QOSGJSIZKWBP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-east-t-2::control/OGTDJUZQBTOQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>arn:aws:controltower:us-west-t-2::control/OGTDOUZQBTOQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong>&lt;br&gt;arn:aws:controltower:ca-central-1::control/RZ FOSHJDWQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-2::control/XBIANCENZNPT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-1::control/IKFLVYCSQUUW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong>&lt;br&gt;arn:aws:controltower:eu-central-1::control/QD UMMVXOVRJU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1:cont rol/ZQNUY RNLELMH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower er:eu-wes t-2:cont rol/KLPNF IYSSKEX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower er:eu-nor th-1:cont rol/QTKV XJRHKVVN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower er:ap-south-1:cont rol/KYIC ILZPASAZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower er:ap-northeast-2:control/0UJUGYPGPBTR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/SKXEZLRKRIFO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/UHGKAZQPWHYD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/EIXEGSOMQYMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/LQTJUUFUBRCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southwest-1:control/CT.S3.PR.54476</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ONLMVXNYTOQO</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Jakarta)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/GXPXMXODYBYO</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Osaka)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/HNCNPCYDQYBTR</td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/GXPMXODYBYO</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/GXPMXODYBYO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/QGMB AE0HJWGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/HLID PMXKIOFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/ZH BXBCQPAMA0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/UG OFNNRHFKRL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/NZFR DTFZPLNO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.S3.PR.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CT.S3.PR.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/EXSYS TLXGVRE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/SPSBP NJTBZZK</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/WIBGV DNRDWQR</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/JV KPEB0PGEKW</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/WVHLLLZEVRCQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/SIFXKRHFTFJV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/HYKSATXAETXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/PTGEBDEGHRPD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/FABQOCRPIITA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-3:control/SUHIE TMCJFVC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas t-1:control/ILKIJRJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes t-1:control/PCNZK GERWRYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas t-1:control/WRPJQO RRMWAVW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>MENFCLCEHUMV</td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td>Asia Pacific (Osaka)</td>
<td></td>
<td></td>
<td>MENFCLCEHUMV</td>
</tr>
<tr>
<td>UIWWHMZAHUB</td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td>Europe (Milan)</td>
<td></td>
<td></td>
<td>UIWWHMZAHUB</td>
</tr>
<tr>
<td>CTTTWIWEUJJ</td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td>Africa (Cape Town)</td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td>XBKZPYOKFUZT</td>
<td></td>
<td></td>
<td>XBKZPYOKFUZT</td>
</tr>
<tr>
<td>Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td>WMOZGCWHFQPY</td>
<td></td>
<td></td>
<td>WMOZGCWHFQPY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/ID ZZGOPLRKFC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/GKFPPVNGUOY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/FAAE XSNAJBGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/SCSY AFKBKFET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>
### Control identifier

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.S3.PR.8         | - CIS AWS Benchmark 1.4 AC-17(2) | Encrypt data in transit | - US East (N. Virginia) arn:aws:controltower:us-east-1::control/KQIDXVAURPNL  
<p>|                    | - NIST 800-53 Rev 5 AC-4          |                    | - US East (Ohio) arn:aws:controltower:us-east-2::control/XACDBPRGTLYA |
|                    | - NIST 800-53 Rev 5 IA-5(1)       |                    |                                  |
|                    | - NIST 800-53 Rev 5 SC-12(3)      |                    |                                  |
|                    | - NIST 800-53 Rev 5 SC-13         |                    |                                  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/MPNBMXJVAAWW</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/GIQAEXYNBYBIQ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/BYKXCKKRYVIV</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/EVSHZCEOCLDQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/RR MXKKLSMMCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower er:eu-west-1::control/WWING KFVKVZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower er:eu-west-2::control/VMEGH EZKVRHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower er:eu-northeast-1::control/VXOW MBPGJWWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower er:ap-southeast-1::control/ZwZW DEMHXOHI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/KTRFCYEXSTXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/QWXAZRHXGAPOF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/JSFWYVSJEBLH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/DMPZJVZMWZN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/DMPZJVZMWZN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/HXTNW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GMJJZGM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/QFTBT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LBFFQSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KZHGCHWLWFGO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RVFBVPTCPJHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::con</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifier, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/BCLB ADAGFADV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>on trotl towe r:af-sou th-1::con trol/STVA PGCPQSUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>on trotl towe r:me-sou th-1::con trol/BDAB ORJSMRZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>on trotl towe r:il-cen tral-1::c on trol/TA ZUUWKEQXPV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>on trotl towe r:eu-cen tral-2::c on trol/FX NNHXMTPWOB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/EGTVZTLAIMXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/XQMJUIQTGZYX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/ASXITBMOMFBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower:ap-southeast-4::control/QPPBAOJDQLFG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>----------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.S3.PR.9</td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td>• Protect data integrity</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/YCXCEZLFPPEZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/EQNXZOTUEHEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/CHIOVWNEUBWJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/DKOVKUNLSMJU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/MOCNFRGVJQIQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/HHIBSFXWAOFQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/DOSCMGEBQUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/XXUOTYAXZIOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/KTUXU GJYXVEO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/NMEV AZFEZWLD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/YDWM XGHWKJDO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/Geanurjhosju</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-2::control/Geanurjhosju</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HSMBYWLJ/EVPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/EQCS0ZEMFEOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-1::control/HXMAUGJKIZZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/MMPITMGATTGG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas-1::control/KQCIA TXNKEVO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/KMRGDQJCVIKH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/DARIPVIIRWUC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/QUSGEFKIGLXK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/MCGZBCKMXTXN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-southeast-2:control/KMRGDQJCVIKH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/XDMG VMGSZSXJ</td>
</tr>
</tbody>
</table>
|                    |           |                  | • **Israel (Tel Aviv)**  
|                    |           |                  | arn:aws:controltower:il-central-1::control/AK LAOZHIFAHX |
|                    |           |                  | • **Europe (Zurich)**  
|                    |           |                  | arn:aws:controltower:eu-central-2::control/CB YRCOKJUEIWX |
|                    |           |                  | • **Europe (Spain)**  
|                    |           |                  | arn:aws:controltower:eu-south-2::control/HPMQ GMDDKGSQ |
|                    |           |                  | • **Asia Pacific (Hyderabad)**  
<p>|                    |           |                  | arn:aws:controltower:ap-south-2::control/ |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.SAGEMAKER.PR.1</td>
<td>NIST 800-53 Rev 5 AC-21</td>
<td>Limit network access</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/NXBXUFEBMYSV</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CT.SAGEMAKER.PR.1**

- NIST 800-53 Rev 5 AC-21
- NIST 800-53 Rev 5 AC-3
- NIST 800-53 Rev 5 AC-3(7)
- NIST 800-53 Rev 5 AC-4
- Limit network access
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/BILKEGTPYTL0</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/BAYFKDFICPXR</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/ZXUCDQEYSHPT</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/KJAHYCKSSRAA</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>er:ap-south-east-1::control/HLYGAUWTYVRB</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/FSUJOVACPHJM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/XRTOTOYPMYBC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-2::control/NFMRNEASBICM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/EECQVSZWL0XW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific</strong>&lt;br&gt;(Mumbai)&lt;br&gt;arn:aws:controltower:ap-south-1::control/EOQDTUMRBXGY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific</strong>&lt;br&gt;(Seoul)&lt;br&gt;arn:aws:controltower:ap-northeast-2::control/IHHCXMIJDPUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific</strong>&lt;br&gt;(Tokyo)&lt;br&gt;arn:aws:controltower:ap-northeast-1::control/KABHYKBSJCDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe</strong>&lt;br&gt;(Paris)&lt;br&gt;arn:aws:controltower:eu-west-3::control/KVUSHDIZGCFC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America</strong>&lt;br&gt;(São Paulo)&lt;br&gt;arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower er:sa-eas t-1::cont rol/PKJBX QYFTRYT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/XKYIJ GULCHJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/UOYFC MRGSGQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/POCEBHMEGEXJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-1::control/POCEBHMEGEXJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
|                   |           |                  | theeast-3: control/
<p>|                   |           |                  | GLVFJPOFPXNJ |
|                   |           |                  | • Europe (Milan) arn:aws:controltower:eu-south-1::control/XBMHGBXUTPTS |
|                   |           |                  | • Africa (Cape Town) arn:aws:controltower:af-south-1::control/QMVMRDVZDKWA |
|                   |           |                  | • Middle East (Bahrain) arn:aws:controltower:me-south-1::control/SQBNRAQIOBDV |
|                   |           |                  | • Israel (Tel Aviv) arn:aws:controltower:il-central-1::control/GUOCCAAHNGEK |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/XZ RBQVWNHOOL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/FFOC TNBPTMAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/WXNS WEWICMMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central-1::control/QV LCYLNWCVQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| CT.SAGEMAKER.PR.2  | - NIST 800-53 Rev 5 AC-21  
|                    | - NIST 800-53 Rev 5 AC-3  
|                    | - NIST 800-53 Rev 5 AC-3(7)  
|                    | - NIST 800-53 Rev 5 AC-4  
|                    | - NIST 800-53 Rev 5 AC-4(21)  
|                    | - NIST 800-53 Rev 5 AC-6  
|                    | - NIST 800-53 Rev 5 SC-7  
|                    | - NIST 800-53 Rev 5 SC-7(11)  
|                    | - NIST 800-53 Rev 5 SC-7(16)  
|                    | - NIST 800-53 Rev 5 SC-7(20)  | - Limit network access | - US East (N. Virginia)  
|                    |                                      |                        | arn:aws:controltower:us-east-1::control/BFRWUSCUMZGR  
|                    |                                      |                        | - US East (Ohio)  
|                    |                                      |                        | arn:aws:controltower:us-east-2::control/GJVQNCVKMEK  
|                    |                                      |                        | - US West (Oregon)  
|                    |                                      |                        | arn:aws:controltower:us-west-2::control/OXZGZLYYZZDX  

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong>&lt;br&gt;arn:aws:controltower:ca-central-1::control/MC LENUGHMFXY0</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-2:control/WHZCFXEMTXVF</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-1:control/FTKA0NSGNFCD</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong>&lt;br&gt;arn:aws:controltower:eu-central-1:control/SS AOHZ0HNKPC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong>&lt;br&gt;arn:aws:controltower:eu-central-1:control/SS AOHZ0HNKPC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/YEXOMFQQIRQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/BCODMJVNRAYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/SCTOVGXJHSTW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/ZTZRIMHDVQSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control/AJUBXQWZCNZA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/XRQNSQZACILS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes/t-3:control/rol/TETZPAGYDAJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas/t-1:control/rol/YDBJTBBNIMH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes/t-1:control/rol/XGNLGNXPWUFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltow er:ap-eas t-1::cont rol/NYSYX CRATNBX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltow er:ap-sou theast-3: :control/ PYUYQRAJTEYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltow er:ap-nor theast-3: :control/ WLJGIWFSJQDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltow er:eu-sou th-1::con trol/FQOC 0BHBFWNB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:c ontroltow er:af-sou th-1::con</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/ACII COUHVBVV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1::control/EFQS DWADDOVT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/RB CEKQMEPPSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/OR WQSQDZDZFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/DFQMNNGMINELE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.SAGEMAKER.PR.3</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/HOQUZBNWPSKO</td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-6(10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIST 800-53 Rev 5 AC-6(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI DSS version 3.2.1 8.1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US East (Ohio)</td>
<td>arn:aws:controltower:us-east-2::control/MDQQIQVONAGJQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/PQGNSNZZVPTNP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/PFWXZLGHZHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/WFSJGEHTGUJD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BORBTTFXSVMR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XG SJWJUCDSDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QUAMX LGBEEBM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FFLFB LHYHRKH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/VECR JWSQKKJX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/MWSRFJCKCMYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/YKZDB0CKKZBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/HCJSGYPXGJZD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*er:*eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:*control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/NRPXZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DRCFVEM</td>
</tr>
<tr>
<td>• South America</td>
<td></td>
<td></td>
<td>(São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*arn:*aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:*control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/YHWVC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TSCOZPQ</td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td>California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*arn:*aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:*control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/JLDGS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DBFPEIG</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*arn:*aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:*control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/MAMFM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PGXSSSQ</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>(Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*arn:*aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-3:</td>
</tr>
</tbody>
</table>

CT.SAGEMAKER.PR.3

4516
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/JGRCefMTNSLL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific</td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Milan)</td>
<td>• Europe (Milan) arn:aws:controltower:eu-south-1: :control/YIEFYCwYwzLu</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Framework</td>
<td>• Africa (Cape Town) arn:aws:controltower:af-south-1: :control/HRMNWAHHHTFT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Framework</td>
<td>• Middle East (Bahrain) arn:aws:controltower:me-south-1: :control/KNZFNFXXSdikd</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/JMEFHDAXBAE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/OYPVSQELUEML</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/TVCLBFAMYSLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/RYVXFMPGIYGK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
</tbody>
</table>

**Control identifier**
- CT.SAGEMAKER.PR.3
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.SQS.PR.1        | None      | • Improve resiliency | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/WHMAMEUKIFGE  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/LSZZWCFWWWEBV |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/LIUFDWXIUWLFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/SCCEOQLMMEP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/RBKKATWLGQVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/OCQCVFYIRMUH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/OY PHJPNFBBWNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (Ireland) arn:aws:controltower:eu-west-1::control/YGMMIFHGIHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (London) arn:aws:controltower:eu-west-2::control/DALEUNIJKTHY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/WBEXRWIRFKJL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/PHYPNFBWWN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/ :control/HBILQHCZJFAW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/ :control/JHJLYBFELNSZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1:control/ :control/BUBHN TXSNVHH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US West (N. California)</td>
<td>arn:aws:controltower:us-west-4522</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-wes:control/PYPJC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ABAISCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas:control/SBDRR:PRISVPY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-south-east-3:control/BVGSHIGLNFAP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controltower:ap-nor-south-east-3:control/YWVNSHOTESWX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-east-1:control/CT.SQS.PR.1 4523</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/GMPK ONEBTSAP</td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/OHHOHNXKODUA</td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/HTWJNZMMPUNH</td>
</tr>
<tr>
<td>• Israel (Tel Aviv)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/CA MCCUUHVPFM</td>
</tr>
<tr>
<td>• Europe (Zurich)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/CS MGZDWGUJGL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2::control/UEYNXEJBYMSM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2::control/IMICTIWIQHXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1::control/IOBECTBBGEI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4::control/DGEFIBBBKNAY</td>
</tr>
</tbody>
</table>
## CT.SQS.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.SQS.PR.2        | • NIST 800-53 Rev 5 CA-9(1)  
                      • NIST 800-53 Rev 5 CM-3(6)  
                      • NIST 800-53 Rev 5 SC-13  
                      • NIST 800-53 Rev 5 SC-28  
                      • NIST 800-53 Rev 5 SC-28(1)  
                      • NIST 800-53 Rev 5 SC-7(10)  
                      • NIST 800-53 Rev 5 SI-7(6)  
                      • PCI DSS version 3.2.1 3.4 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/JBIFAREFXJYH  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/RXJEPAOSCUYZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/AQUJFJQURUFV  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/QPVUZBBDOKR |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/NWPVCUCMYWJV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/LLQBEYVBOONPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/DNLXKJDBGSF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/VIRICUDUZRHZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/Region/MPPVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HPMBSNZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltow er:eu-nor th-1::control/ZIGS JHHCJDFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower er:ap-south-1::control/JAGV XXXLXSRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower er:ap-northeast-2::control/DTARWAFQDLEJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower er:ap-northeast-1:</td>
</tr>
</tbody>
</table>

**Additional Note:**

- **Control identifier** refers to unique identifiers assigned to each control within the AWS Control Tower framework.
- **Framework** categorizes the controls based on specific regions.
- **Control objective** outlines the purpose or goal of each control.
- **Control API identifiers, by Region** lists the specific ARNs (Amazon Resource Names) associated with each control instance within the respective regions.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XDDGSSVPQAVQ</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-westa-t-3:control/UKPB0GUMVAX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America</td>
<td>arn:aws:controltower:sa-easa-t-1:control/DCLDB WPADGYE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N.</td>
<td>arn:aws:controltower:us-westa-t-1:control/VLTWP SHSLAKQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td>arn:aws:controltower:ap-easa-t-1:control/HGMWZ IVVMLXP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Hong Kong)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CT.SQS.PR.2  4529
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/ERHGIIIDRLPCS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/HYGNOVUHPJWO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/MLKLUIARVDHN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/AWUNOCUECLQA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/AWUNOCUECLQA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south-1::control/RUAWNTLATCEP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/PZGOUGUCUHIE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/RCDCYANDWUAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/BAJGOTFZUYN0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/BAJGOTFZUYN0</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/CUOQM0AQVWNG</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/OFRNXQNITJES</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/RJCWEUDEWEBLJ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/HYFUIUJ0XQNV</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td>er:ap-southeast-1:control/CWLRWPTPGQVD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/NA MQPORQVXQM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/SBVYLFYIIIXPP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/KDFTTNMHBLL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northern-1::control/CGAFSUBVZBJH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1::control/FKXONMCUFEDB</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2::control/BSARINIRFYGL</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1::control/ERZIMFMFCIVL</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/JGQQRQVFLGDJ</td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/CT.STEPFUNCTIONS.PR.1</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:sa-eas:ct:control/rol/RILHLBPXXUXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3: :control/ ITIIXOXNEGKVY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1::control/YVHX PCMYPLFP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/WJFY NIIKQSEC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/PHYY VEOKRM0A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/FP NHTOWNICVK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/MNYFKBIEUNXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/CMAQXQSALRDW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/LJISIXNGHBENY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/PJTDUVKFBWB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower</td>
</tr>
</tbody>
</table>
## CT.STEPFUNCTIONS.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.STEPFUNCTIONS.PR.2 | • NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AU-10  
• NIST 800-53 Rev 5 AU-12  
• NIST 800-53 Rev 5 AU-2  
• NIST 800-53 Rev 5 AU-3  
• NIST 800-53 Rev 5 AU-6(3)  
• NIST 800-53 Rev 5 AU-6(4)  
• NIST 800-53 Rev 5 CA-7  
• NIST 800-53 Rev 5 SC-7(9)  
• NIST 800-53 Rev 5 SI-7(8) | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/BHEGKQAMVASL  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/VXVKISEMRURZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/MSXYLKDPWZRN |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/BZ AERZJTDTLU</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/BUACWBSQOPNW</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/JHBUWHFLVYG</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/JK UFUGHYKGF</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1:control/MUNRX YWSIOUS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:control/awscontroltower er:eu-wes t-2:control/HMTTW OFYBDUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:control/awscontroltower er:eu-nor th-1:control/FLMF YWQVJDZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:control/awscontroltower er:ap-sou th-1:control/YHNW BNXVKOZP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:control/awscontroltower er:ap-nor theast-2:control/FLVJBWFDWHDJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/IXMAHHUSDUVR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/GCMXGSVVIEUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/IBZBYQWSSFBM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/YANYSDEXXDEH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-east-1:control/DEXXDEH</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontrolltower:ap-east-1:control/MWCJKKKFLGQI</td>
</tr>
</tbody>
</table>
|                     |           |                   | • Asia Pacific (Jakarta)  
arn:aws:controltower:ap-southeast-3:control/MXXULKHAVUNN |
|                     |           |                   | • Asia Pacific (Osaka)  
arn:aws:controltower:ap-northeast-3:control/TVTNAPHRDRZU |
|                     |           |                   | • Europe (Milan)  
arn:aws:controltower:eu-south-1:control/ULPOIYIDRFWE |
|                     |           |                   | • Africa (Cape Town)  
arn:aws:controltower:af-south-1:control/ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/TYPG EIBRQHQW</td>
</tr>
<tr>
<td>• <strong>Middle East (Bahrain)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/LRDZXXUZTAVN</td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1:control/EEKQLYFIYRRG</td>
</tr>
<tr>
<td>• <strong>Europe (Zurich)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2:control/RMLLZIIHUNYX</td>
</tr>
<tr>
<td>• <strong>Europe (Spain)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2:control/WTJRSSHPAKK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>CT.WAF-REGIONAL.PR.1</td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) arn:aws:c</td>
</tr>
</tbody>
</table>

**CT.WAF-REGIONAL.PR.1**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
<td>ontroltower:us-east-1::control/DIPWB OCJUTTO</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 6.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td>arn:aws:controltower:us-east-2::control/UYFKJ EOQVEWH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td>arn:aws:controltower:us-west-2::control/TEMUMB MEADETS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td>arn:aws:controltower:ca-central-1::control/TL TACWUKOMHH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/JGWGMJBHDRUF</td>
</tr>
<tr>
<td>• Asia Pacific</td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore)</td>
</tr>
<tr>
<td>(Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/MBRMDGSBSB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1: :control/XHVSSBIHIROY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1: :control/KTKPKIVBNQDE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2: :control/CAGANIVPBXCM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/AYNFYQXOVCGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/PWYDDDJMHVKA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/GMIRRPOYKDSI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/GBLQKIZJUWLI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/PLLMI JKTGYDC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas t-1::control/FWZWR HWINCPZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes t-1::control/BODSS YLZFBOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas t-1::control/VVYKY KULBINF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou theast-3:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>:control/ADCMSRCCWZPA</td>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3: :control/ZJLIMDYSNJVA</td>
<td></td>
</tr>
<tr>
<td>:control/PWKKZXICJEGW</td>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-south-1: :control/LXWHHALWLTCF</td>
<td></td>
</tr>
<tr>
<td>:control/MVZLKKWDHKMA</td>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1: :control/LXWHHALWLTCF</td>
<td></td>
</tr>
<tr>
<td>:control/MVZLKKWDHKMA</td>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:controltower:me-south-1: :control/LXWHHALWLTCF</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Israel (Tel Aviv) arn:aws:controltower:il-central-1:control/GDNDQQRUGPJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Zurich) arn:aws:controltower:eu-central-2:control/JLHUAWBNDDBHN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2:control/DQMNWOSDETX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2:control/GMCXVXDPPPHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>CT.WAF-REGIONAL.PR.2</td>
<td>NIST 800-53 Rev 5 CA-9(1)</td>
<td>Limit network access</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/IZBRUNFKGILL</td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 6.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/EQMCVOITIUSBY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/TYQHRXOLTMTRT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/QWRJQUNFEALJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/QOMUGMEGSIHK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1::control/RM IXORRPHOQD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/RLXVXAPJNGYIP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/ECHXMXRZBVQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/IRXUIROUYYYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/TXHEZWGTFT</td>
</tr>
</tbody>
</table>

CT.WAF-REGIONAL.PR.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/ KOGUYYCCSEJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/ SNJTGWLCRZLW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/TRZOI IDYBNNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/XEDCR XBBIYWT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-2::control/ KOGUYYCCSEJB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:us-west-1::control/YYCBBISOPTCI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Hong Kong) arn:aws:controltower:ap-east-1::control/OCLEQHMCFSEV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Jakarta) arn:aws:controltower:ap-southeast-3::control/HHXUYSUFAPFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Osaka) arn:aws:controltower:ap-northeast-3::control/QYJWCLEE0XNL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Milan) arn:aws:controltower:eu-south-1::control/CT.WAF-REGIONAL.PR.24556</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/KMLH OMCISOOF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1::control/PLBW FTQGUIYPO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1::control/DMWN VMCVVLCU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1::control/MQ XFOURKFKIZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/OJ MMCNHJKKIC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Spain) arn:aws:controltower:eu-south-2:control/ZEYP/ELWNMQGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hyderabad) arn:aws:controltower:ap-south-2:control/RWNP/UZWYHNMY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (UAE) arn:aws:controltower:me-central-1:control/NC/JSSEWLPACP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Melbourne) arn:aws:controltower:ap-southeast-4:control/THIHAAMWYOLM</td>
</tr>
</tbody>
</table>
## CT.WAF.PR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.WAF.PR.1        | • NIST 800-53 Rev 5 CA-9(1)  
                     • NIST 800-53 Rev 5 CM-2  
                     • PCI DSS version 3.2.1 6.6 | • Limit network access | • US East (N. Virginia)  
                     arn:aws:controltower:us-east-1::control/UNASESNVHVZY  
                     • US East (Ohio)  
                     arn:aws:controltower:us-east-2::control/VDXLZKVLPFSH  
                     • US West (Oregon)  
                     arn:aws:controltower:us-west-2::control/RVKEXLTMXJVJ  
                     • Canada (Central)  
                     arn:aws:controltower:ca-central-1::control/SEFPFJCQ0YKK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/LBEBQHSFDADD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AKUBJOAGFDTU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/XVRCZGVSPYIL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/ELFPBLOGRZYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/LSGSH IHBLVLX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/IRRD WBVEEVZR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/XANE TJVAE0SW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/PLNVFAREKZXP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/TXHPCTJXMEXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/JSPZJEWVUVFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ZVSTKBQVFFMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/SVRRGEYNFUOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/NCRRNMOLKHQE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Jakarta)</td>
<td>arn:aws:controltower:ap-southeast-3:control/KCRFFFCEBPEA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Osaka)</td>
<td>arn:aws:controltower:ap-northeast-3:control/XKVNIOEEWELE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Milan)</td>
<td>arn:aws:controltower:eu-southeast-1:control/ZDJOMTGOHOJR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Africa (Cape Town)</td>
<td>arn:aws:controltower:af-south-1:control/GQFGYLKZJIDA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Middle East (Bahrain)</td>
<td>arn:aws:c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:me-south:control/GPIO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central:control/BL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SNAPKCBEBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central:control/EU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OUIEIKSRQK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south:control/OVMO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WJDWSHZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south:control/OVMO</td>
</tr>
</tbody>
</table>
### Control identifier | Framework | Control objective | Control API identifiers, by Region
---|---|---|---

#### CT.WAF.PR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.WAF.PR.2        | • NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16) | • Limit network access | • US East (N. Virginia)  
ar:n:aws:controltower:us-east-1::control/EVTLD FVJREHX |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(21)</td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/TESBXHDTYCVR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 6.6</td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/WHEYGYOKBFEE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/WKAOAEFQEGB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/ZWQCPIXANTTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou theast-1: :control/ VULAATRXMKNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/QV EBBPUQHHTP</td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/LAPES UGIQGRW</td>
</tr>
<tr>
<td>Europe (London)</td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong> arn:aws:controltower:eu-west-2::control/FHTQF TBMJHIC</td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/HAFOBOPSXWQF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/TZFBNAETOMJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/HWDELIBEVBFK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/WGLOYXOZAYLU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/XQQXGFIHZZHQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:south-america-sao-paulo:control/CT.WAF.PR.24568</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong> arn:aws:controltower:sa-east-1::control/GHWIKZXTBTPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Hong Kong)</strong> arn:aws:controltower:ap-east-1::control/WVKFSXCMOAFB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Jakarta)</strong> arn:aws:controltower:ap-southeast-3::control/BWSNHISVRCNV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Osaka)</strong> arn:aws:controltower:ap-northern-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-3:control/TLGQBOREOSV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Milan)</strong> arn:aws:controltower:eu-south-1:control/JNFJCDGBQAQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Africa (Cape Town)</strong> arn:aws:controltower:af-south-1:control/OXORBSCQFWTQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Middle East (Bahrain)</strong> arn:aws:controltower:me-south-1:control/IQGCTIQOKDWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Israel (Tel Aviv)</strong> arn:aws:controltower:il-central-1:control/OWJPZJWTO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong> arn:aws:controltower:eu-central-2::control/KG UPKWOEJMQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong> arn:aws:controltower:eu-south-2::control/HSIX LKCRSNKW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong> arn:aws:controltower:ap-south-2::control/TFNT AHCAFOHL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong> arn:aws:controltower:me-central-1::control/WI BXCFGXLPLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Melbourne)</strong> arn:aws:controltower</td>
</tr>
</tbody>
</table>

**CT.WAF.PR.2**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| CT.WAFV2.PR.1       | • NIST 800-53 Rev 5 AC-4(21) • NIST 800-53 Rev 5 SC-7 • NIST 800-53 Rev 5 SC-7(11) • NIST 800-53 Rev 5 SC-7(16) • NIST 800-53 Rev 5 SC-7(21) • PCI DSS version 3.2.1 6.6 | • Limit network access | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/XEONMNFZMEEF  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/JWKJRMPQGYL  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/KYOLAPACMMCW |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/NPVKWMPNGNPQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ITRZPFPNHOVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/GXKAGSHEBLQA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/TJZLGRPBEFZZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-1::control/ACZQQ JXMSSKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-wes t-2::control/WNZNWBPTAQGS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/PQBM KWIWABGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/ZJTW MPTTRZRR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/FLFTSMKQPGA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-1:control/QPSONUAQWAOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong>&lt;br&gt;arn:aws:controltower:eu-west-3:control/RQXLA XERBFAH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong>&lt;br&gt;arn:aws:controltower:sa-east-1:control/OBDIK EAZGTAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong>&lt;br&gt;arn:aws:controltower:us-west-1:control/NIGBB ACJPCNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hong Kong)</strong>&lt;br&gt;arn:aws:controltower:ap-northeast-1:control/QPSONUAQWAOR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ontroltower:ap-east:t-1:control/ALLKEZAETGXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-3:control/WRSGKTAMFUNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/ATYEMLPACRYL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/JUDFDFZUPGDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>trol/AFMI FZSFCJAM</td>
</tr>
<tr>
<td>• <strong>Middle East</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Bahrain)</td>
<td></td>
<td></td>
<td>Arn:aws:controltower:me-south-1:control/UGZF HMKFGWPJ</td>
</tr>
<tr>
<td>• <strong>Israel (Tel Aviv)</strong></td>
<td></td>
<td></td>
<td>Arn:aws:controltower:il-central-1:control/DW WMENQHGMKJ</td>
</tr>
<tr>
<td>• <strong>Europe (Zurich)</strong></td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-central-2:control/CR GWQEGNYRWJ</td>
</tr>
<tr>
<td>• <strong>Europe (Spain)</strong></td>
<td></td>
<td></td>
<td>Arn:aws:controltower:eu-south-2:control/THNA CPIXQEGW</td>
</tr>
</tbody>
</table>
## Control identifiers, by Region

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT.WAFV2.PR.2</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) <code>arn:aws:</code></td>
</tr>
</tbody>
</table>

**CT.WAFV2.PR.2**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
<td>ontroltower:us-east::control/JLKGL:ZGUQJYB</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 6.6</td>
<td></td>
<td></td>
<td>us-east::control/JLKGL:ZGUQJYB</td>
</tr>
<tr>
<td>• US East (Ohio)</td>
<td></td>
<td></td>
<td>us-east::control/JLKGL:ZGUQJYB</td>
</tr>
<tr>
<td>• US West (Oregon)</td>
<td></td>
<td></td>
<td>us-west::control/TMEPJ:GMZTEOI</td>
</tr>
<tr>
<td>• Canada (Central)</td>
<td></td>
<td></td>
<td>ca-central::control/LZ:IRXMIWBDLY</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>ap-southeast-2::control/LZ:YXN1cmFtZQ==</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HGYKZRUFIFSG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/GITZQTTINVIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/VD AEUHLAPSJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/FBEJW AWHUGHF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-2::control/JEGHU QJDAJPX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/CXJMVDJZHUAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/FQITWYCBKFGZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/YUWWRBUJCKWS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/UKLHGBFDUPK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-3::control/controle:eu-wes-3::control/KJZYD ZBLLW0Q</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas t-1::control/controle:sa-eas-1::control/WKXZF SDZWWOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes t-1::control/controle:us-wes-1::control/CPNWT ODASNRJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Hong Kong) arn:aws:controltower:ap-eas t-1::control/controle:ap-eas-1::control/OLRFC EMWLWYF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Jakarta) arn:aws:controltower:ap-south-east-3 t-1::control/controle:ap-south-east-3-1::control/ODASNRJ</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UFZYEYYHGREGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Osaka)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-3:control/EVFGOLAANCYD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Milan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-1:control/RBGKCDWRDJOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Africa (Cape Town)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:af-south-1:control/FACN TUGQMNFD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Middle East (Bahrain)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-south-1:control/SLSRALIGXMUXQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Israel (Tel Aviv)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:il-central-1::control/KB PYZPMGBKZM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Zurich)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-2::control/SS UYGEFIPPHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Spain)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-south-2::control/WYZT RLBPOGAB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Hyderabad)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-2::control/EBHC UTSNUBCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Middle East (UAE)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:me-central</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SH.ACM.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ACM.1</td>
<td></td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(3)</td>
<td></td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/MBCMJMZJGPLS</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/WXFMEFMVTLUM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>us-west-2::control/ANXKMBZMHTME</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ca-central-1::control/BUYCUITYPVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-2::control/PKBECMZKORWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-southeast-1::control/MSYJENQMUXJK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-central-1:control/VY LDSKRLKKOA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/ZKVPMZUWFGJF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2:control/BKDZMYWHGSGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1:control/QPVAASCUWYZA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/VPNP0EIIUSHA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:ctroltower:ap-northeast-2:control/TFNTUZCUNKTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:ctroltower:ap-northeast-1:control/EYLAEGFQRCWO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:ctroltower:eu-west-3:control/EJGKLXXBAEET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:ctroltower:sa-east-1:control/OWLPOEUWSXFB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:c</td>
</tr>
</tbody>
</table>
### SH.ACM.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.ACM.2           | • NIST 800-53 Rev 5 CM-8  
                     • PCI DSS version 3.2.1 2.2 | • Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/OESYMJR00XEH  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/NJCVUUULHBNH  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/WRLVGHVNTPDD |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/DAMNU GWIKMAB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/RP NDGPPSHSBC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/DDIXKRVKEQEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/JSIQTGMCBGSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/HS NWRETFPGVZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-wes:t-1::control/PISVJSLLVEXN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower:eu-wes:t-2::control/UYLGMFYYL0TX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor:th-1::control/RWLRYADXZPUG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-sou:th-1::control/QGYUUHWATOQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-nor</td>
</tr>
</tbody>
</table>

SH.ACM.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DZVWVPKKLYFW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KBBAURDMUTKQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RLNQF IYBCUMK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TZVKB KLRCSAO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/</td>
</tr>
</tbody>
</table>

### SH.APIGateway.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.APIGateway.1    | - NIST 800-53 Rev 5 AC-4(26)  
                     - NIST 800-53 Rev 5 AU-10  
                     - NIST 800-53 Rev 5 AU-12  
                     - NIST 800-53 Rev 5 AU-2  
                     - NIST 800-53 Rev 5 AU-3  
                     - NIST 800-53 Rev 5 AU-6(3)  
                     - NIST 800-53 Rev 5 AU-6(4)  
                     - NIST 800-53 Rev 5 CA-7  
                     - NIST 800-53 Rev 5 SC-7(9)  
                     - NIST 800-53 Rev 5 SI-7(8)  
                     - PCI DSS version 3.2.1 10.1 | - Establish logging and monitoring | - US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/OOTDCUSIKIZZ  
- US East (Ohio)  
arn:aws:controltower:us-east-2::control/YJANVDFZSBQJ  
- US West (Oregon)  
arn:aws:controltower:us-west-2::control/TBTRTAXTT0FK  
- Canada (Central)  
arn:aws:controltower:us-east-1::control/OOTDCUSIKIZZ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td>ontroltower:ca-central-1::control/DH NKNPSWPETE</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-southeast-2::control/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWJUGOAFXGNW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:ap-southeast-1::control/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGUZTOXVATMM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-central-1::control/UE DENVOMHGZD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-west-1::control/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/CBNMU ENGDKVZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-2::control/LPNUK HXMINFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/FVIR YJHPLBKRU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/YLBG COIJCWCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/NWUHBVMJFWU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) &lt;br&gt; arn:aws:controltower:ap-northeast-1::control/XGFCWUSCPWBT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) &lt;br&gt; arn:aws:controltower:eu-west-3::control/OUDKZHUFMKXZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) &lt;br&gt; arn:aws:controltower:sa-east-1::control/LKWQTCVNHFYV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) &lt;br&gt; arn:aws:controltower:us-west-1::control/QVXVDPINRLPY</td>
</tr>
</tbody>
</table>
## SH.APIGateway.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.APIGateway.2</td>
<td></td>
<td>Encrypt data in transit</td>
<td></td>
</tr>
</tbody>
</table>

- **NIST 800-53 Rev 5**
  - AC-17(2)
  - AC-4
  - IA-5(1)
  - SC-12(3)
  - SC-13
  - SC-23
  - SC-23(3)
  - SC-7(4)
  - SC-8
  - SC-8(1)
  - SC-8(2)

- **PCI DSS version 3.2.1**
  - 2.3
  - 3.2.1
  - 4.1

**Regions:**
- **US East (N. Virginia)**
  - arn:aws:controltower:us-east-1::control:MDMYSLZ
- **US East (Ohio)**
  - arn:aws:controltower:us-east-2::control:NTFQENX
- **US West (Oregon)**
  - arn:aws:controltower:us-west-2::control:DSXNTVO
- **Canada (Central)**
  - arn:aws:controltower:ca-central-1::control:WKKFDTSZXX
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/HCPQXEYLPUG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/GCOLOAVWADDA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/BBKQRFGKHF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/UADGC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/NSPCYWJJBD RH</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:控制tower:eu-nor th-1:控制/JJLTDTNZHJXM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:控制tower:ap-south-1:控制/ZWRP SDCJJPW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:控制tower:ap-northeast-2:控制/ RDMVJESGQCRW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:控制tower:ap-northeast-1:控制/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SH.APIGateway.2 4599
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AZWAXOWQMANJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/USOHUOSOHIJTHFCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/EJSPZRWREGJO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/FHXXJXTFOFWJ</td>
</tr>
</tbody>
</table>
# SH.APIGateway.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.APIGateway.3</td>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/OBBBFBBHUVDX</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/TSNMTDBRWMPT</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/LQTFJGDAOWKI</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/XCCMVZSAVCXR</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2: :control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PMGEOVFNRWUU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1: :control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOGMXHEOYZLH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-cen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tral-1::control/BX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ICHCDHLEQE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/AOQCY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZGINFNV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/OELZO KBLNQGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/VOYX YLQQEHGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/RDTQ SQGIEQUC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control-2:ACSVLXDDUUQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UIZDZMDGPDQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/VYXBBUCNMVKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/HBBTG GYEXEVIJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/UYZHE IJXHMDT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------</td>
<td>------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>SH.APIGateway.4</td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td>• Protect configurations</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 6.6</td>
<td>• Manage vulnerabilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/SJEXUSOXPSPK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/MEGBFCTBLAPY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/WGCXWPMBV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/EZACRQZNMTPK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/JDOSDYPYPULQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ASBMSMGXQKPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/YYWWZOFQNUG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/HAVZHQBLTYRE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.APIGateway.4

4606
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/RRTYU CALLKNM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> <code>arn:aws:controltower:eu-nor th-1:control/ONNV QAVMVKBBL</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> <code>arn:aws:controltower:ap-south-1:control/RXPV PYDQGHYM</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> <code>arn:aws:controltower:ap-northeast-2:control/CWHOFIFMIIUS</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> <code>arn:aws:controltower:ap-northeast-1:control/CWHOFIFMIIUS</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XIGRNZOUFDKF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/HUHC0ZDVSPFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/TIJDFZLPKDU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/LQQFBK6WQUA</td>
</tr>
</tbody>
</table>
## SH.APIGateway.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.APIGateway.5</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/IDZLZNCEBCDN</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/KTVOXDKUCOLS</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/ZUWFIOFNIKCI</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/UHUUYXDUHUCFJ</td>
</tr>
</tbody>
</table>

- NIST 800-53 Rev 5
- CA-9(1)
- CM-3(6)
- SC-13
- SC-28
- SC-28(1)
- SC-7(10)
- SI-7(6)
- PCI DSS version 3.2.1 3.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/QRFWQMUPBGAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/YKQIWSPLFHMH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/ICJXNXXFNJBH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/IBHKGKZKMHEJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/IBHKGKZKMHEJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/CPPQT SQZSOZE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/ZBNV UTRHQWLB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/SZGA IYMXIFVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/ HXGROXENSKJT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

SH.APIGateway.5

4611
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/JZSERWQXDHP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/CTJIIUNYJEWZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/XCCAVLLIUNBW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/LCJNAQINZRTI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.APIGateway.8    | • NIST 800-53 Rev 5 AC-3  
                     • NIST 800-53 Rev 5 CM-2  
                     • NIST 800-53 Rev 5 CM-2(2)  
                     • PCI DSS version 3.2.1 7.1.1  
                     • PCI DSS version 3.2.1 7.2.1  
                     • PCI DSS version 3.2.1 7.2.2 | • Use strong authentication | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/UBJNIPLJAUPP  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/UQEZDQFEKINS  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/VOMLOGQZFVTH  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/IESMZILOLTCP |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/AOTXXAIUZGO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/WGRUYTXBKJPT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/MIWYHJXJIR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/APXJLVKOBSEB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/FPBVO RGPWAIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-1::control/LPEG HVWXGRWR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-2::control/KXMSHTINJODP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/SDTKOAZRPRVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3::control/EXXWWSPFGNML</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1::control/JOEIBMZJMEBL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1::control/NOSMEYUGIUHP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>SH.APIGateway.9</td>
<td>• NIST 800-53 Rev 5 AC-4(26)</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/RGZSRZLYXNAM</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-10</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/FBDMHIKAKXYQ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-12</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/ZNUGJCJBNYR</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-2</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/YSRNX0SPMPAR</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-6(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AU-6(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/XNMGCOKKDRTM</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/HSLYQANZTCLF</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/TCUHQTYQIXF</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/GREKWXLBUMYC</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/HWHLV PFIFLLT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/FSET KHTFGIHY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/TPQD ZNHEPZZY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control-2:HUBWBMQSCSTCI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control</td>
</tr>
</tbody>
</table>

SH.APIGateway.9
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KBYFZPAGEIEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/IWTDNHAOVXWZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/OCKVZREZIOQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/EIJKPXWNUMUFUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SH.Account.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Account.1       | • CIS AWS Benchmark 1.4 1.2  
                     • NIST 800-53 Rev 5 CM-2  
                     • NIST 800-53 Rev 5 CM-2(2)  
                     • PCI DSS version 3.2.1 2.2 | • Establish logging and monitoring | • **US East (N. Virginia)**  
                        arn:aws:controltower:us-east-1::control/RYAEGDBVVSEZ  
                        • **US East (Ohio)**  
                        arn:aws:controltower:us-east-2::control/DDPIKWUQKYYH  
                        • **US West (Oregon)**  
                        arn:aws:controltower:us-west-2::control/SCHNFCTFZJG  
                        • **Canada (Central)**  
                        arn:aws:controltower:ca-central-1::control/IBIPKUPTGKCH |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ TDCHULZQJJYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ CLWAFAIJBWUO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/ L0 EEHDRVHTWK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/ TUJJH FEUQRTD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PZTQK PPLUJQC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/ACKPBIEHTKJ0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/IDEXUGBAFKOT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/EMCJNTXLMTCSEMCJNTXLMTC9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DTWMAHWPBVQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/KIIMX DNABIMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/KQCHSPVLTIWQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/NVPFF NRHOZEV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.AppSync.5       | NIST 800-53 Rev 5 AC-2(1) | • Use strong authentication | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/PCPTBIXTYLEG |
|                   | NIST 800-53 Rev 5 AC-3 | | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/OSEDLYFBZHCJ |
|                   | NIST 800-53 Rev 5 AC-3(15) | | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/QNHLOWOFTLTS |
|                   | NIST 800-53 Rev 5 AC-3(7) | | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/KTDSPDIJWYYR |
<p>|                   | NIST 800-53 Rev 5 AC-6 | |  |
|                   | PCI DSS version 3.2.1 7.1.1 | |  |
|                   | PCI DSS version 3.2.1 7.2.1 | |  |
|                   | PCI DSS version 3.2.1 7.2.2 | |  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ZWRDSYASCGBH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/CJZBNRVKKPHC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/KJGYSWNIWTPL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/KMXMASDFBPZC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-westeu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control/LRPBTLPEKFHL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:control:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/GALGXJCQPHEO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:control:ap-south-1:control/KQTDHCYPENTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:control:ap-north-east-2:controlSH.AppSync.54627</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:control:ap-north-east-1:control:SH.AppSync.54627</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CGPDLKJQEPXW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/ULCHFPZDTYMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ILDFGIFJTPAU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/GNYCRQTXZMLX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| SH.Athena.1         | • NIST 800-53 Rev 5 CA-9(1)  
                     |           | • Encrypt data at rest | • US East (N. Virginia)  
                     |           |  
                     |           | arn:aws:controltower:us-east-1::control/MABMXMDUIFUT |  
                     | • NIST 800-53 Rev 5 CM-3(6) |  
                     | • NIST 800-53 Rev 5 SC-13 |  
                     | • NIST 800-53 Rev 5 SC-28 |  
                     | • NIST 800-53 Rev 5 SC-28(1) |  
                     | • NIST 800-53 Rev 5 SC-7(10) |  
                     | • NIST 800-53 Rev 5 SI-7(6) |  
                     | • PCI DSS version 3.2.1 3.4 |  
                     | • PCI DSS version 3.2.1 8.2.1 |  
                     | • PCI DSS version 3.2.1 8.2.1 |  
|                    |           |                  | • US East (Ohio)  
                     |           | arn:aws:controltower:us-east-2::control/CDSTYMVRKVGCQ |  
                     |           |                  | • US West (Oregon)  
                     |           | arn:aws:controltower:us-west-2::control/VIBWIGDEUVJR |  
                     |           |                  | • Canada (Central)  
                     |           | arn:aws:controltower:ca-central-1::control/STTPACNBPVWU |  

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/AWVBQDFAUVY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/CTKQUVOALPDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/SMPSMXYUYOT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/HHBBYUMIQBBF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/AADNN DJBSLRZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/PXFB KFCMXXHCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/ZBCV SSZDSNXL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/VTFOBJDZWLLW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/VTFOBJDZWLLW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LZLJHKXIPFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/TSUSCOEUSLM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/MANYWTMNERPK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/FNEOUWSJOZSR</td>
</tr>
</tbody>
</table>
## SH.AutoScaling.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.AutoScaling.1    | • NIST 800-53 Rev 5 CA-7  
                    | • NIST 800-53 Rev 5 CP-2(2)  
                    | • NIST 800-53 Rev 5 SI-2  
                    | • PCI DSS version 3.2.1 2.2 | • Improve availability  
                    |                       |                               | • US East (N. Virginia)  
                    |                       |                               |   arn:aws:controltower:us-east-1::control/ZWORVQKMSSVN  
                    |                       |                               | • US East (Ohio)  
                    |                       |                               |   arn:aws:controltower:us-east-2::control/JQMVO NDOPRIM  
                    |                       |                               | • US West (Oregon)  
                    |                       |                               |   arn:aws:controltower:us-west-2::control/CCTCK XMLWFDI  
                    |                       |                               | • Canada (Central)  
<pre><code>                |                       |                               |   arn:aws:controltower:ca-central-1::control/IKKVVSEWGLMB |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/HPBROJJRPRQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/XDFGVGCIRJGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/GV PMLVRGBXZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/BVVBN BHSIGXC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.AutoScaling.1
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/SZIHWNZUDWBU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor-th-1:control/ZITVBPNZFKCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/RJDQSGGXMFNH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/ZAUGAPPKZGZC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CXXHKFGCSWUH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/LMYDOQOOYC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/EQAAEUGLWPUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/N00OFEEPXXDP</td>
</tr>
</tbody>
</table>
## SH.AutoScaling.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.AutoScaling.2</td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Improve availability</td>
<td>• <strong>US East (N. Virginia)</strong>&lt;br&gt;arn:aws:controltower:us-east-1::control/WSQFDZGIXKEN</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-2(2)</td>
<td></td>
<td>• <strong>US East (Ohio)</strong>&lt;br&gt;arn:aws:controltower:us-east-2::control/ZBMNYFPMEZY</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td>• <strong>US West (Oregon)</strong>&lt;br&gt;arn:aws:controltower:us-west-2::control/TOSAYLMCDIG</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td>• <strong>Canada (Central)</strong>&lt;br&gt;arn:aws:controltower:ca-central-1::control/JX&lt;br&gt;PAOXBTCBUY</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/CFQPPPBKHPVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/DCTOFQWBSEI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/LOJSJXUWYJIP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/PPNRQGQXGMTG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-1:control/PPNRQGQXGMTG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/NJMEPCCINGYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu:northeast-1::control/VFWAYLBRJFYI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap:south-east-1::control/OVEQWNZWUVPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap:northeast-2::control/OVEQWNZWUVPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap:northeast-1::control/OVEQWNZWUVPE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ESQRNROJXEVQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/XYTUJNEIXONA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/VXUFUULLWWPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/HGYFKHPSJZIO</td>
</tr>
</tbody>
</table>
## SH.AutoScaling.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.AutoScaling.3    | • NIST 800-53 Rev 5 AC-3  
                      • NIST 800-53 Rev 5 AC-3(15)  
                      • NIST 800-53 Rev 5 AC-3(7)  
                      • NIST 800-53 Rev 5 AC-6  
                      • NIST 800-53 Rev 5 CA-9(1)  
                      • NIST 800-53 Rev 5 CM-2  
                      • PCI DSS version 3.2.1 7.1.1  
                      • PCI DSS version 3.2.1 7.2.1  
                      • PCI DSS version 3.2.1 7.2.2 | • Protect configurations | • US East (N. Virginia)  
                        arn:aws:controltower:us-east-1::control/HHCYIDJRAZNC  
                        US East (Ohio)  
                        arn:aws:controltower:us-east-2::control/SHYROJUETSEF  
                        US West (Oregon)  
                        arn:aws:controltower:us-west-2::control/SMYBKBJIJSJ  
                        Canada (Central)  
                        arn:aws:controltower:ca-central-1::control/JWIWNTSKAZGY |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/RSJYIFHSKNSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/VJQHUCFGCESL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/XZHUAZPENXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/CRREQKVJIEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2: cont rol/CNFIJ CJJGMTZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:c ontroltow er:eu-nor th-1: cont rol/WQME EXRGQCEN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:c ontroltow er:ap-sou th-1: cont rol/LPSG VWSPBFOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:c ontroltow er:ap-nor theast-2: :control/ VMBGAYOTTZMK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:c ontroltow er:ap-nor theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EOCUBAKFMZJT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/OZFKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LNYWUQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/YEWHZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HZIYNYF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/EIDKB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DTZOYAF</td>
</tr>
</tbody>
</table>
## SH.AutoScaling.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.AutoScaling.4   | • NIST 800-53 Rev 5 CA-9(1)                                               | • Protect configurations | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/IKDSUXOXJFKTR  
• US East (Ohio)    | arn:aws:controltower:us-east-2::control/EMOKDNAJXDOAB  
• US West (Oregon)  | arn:aws:controltower:us-west-2::control/AFMJRQPIACSQ  
• Canada (Central)  | arn:aws:controltower:ca-central-1::control/CHDIMYUFUAFZQV  

NIST 800-53 Rev 5 CM-2  
PCI DSS version 3.2.1 7.1.1
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

```plaintext
- Asia Pacific (Sydney)
  arn:aws:controltower:ap-southeast-2::control/HCJSOXALINQW
- Asia Pacific (Singapore)
  arn:aws:controltower:ap-southeast-1::control/DJGIZSCS0QYX
- Europe (Frankfurt)
  arn:aws:controltower:eu-central-1::control/HKOBHBPPUYQ
- Europe (Ireland)
  arn:aws:controltower:eu-west-1::control/RVRAXDKXORS
- Europe (London)
  arn:aws:controltower
```
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/YWCELNXFSYON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/BEDTKHHIFODC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/HAQJHOURKUHX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/UZASSMHEBAJH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ QQJMCIPNOORW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/ESTHQVUTZYVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/GTDLBDGYNPFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/BVMXDJEASMCAXY</td>
</tr>
</tbody>
</table>
## SH.AutoScaling.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.AutoScaling.6   | • NIST 800-53 Rev 5 CP-10  
• NIST 800-53 Rev 5 CP-2(2)  
• NIST 800-53 Rev 5 CP-6(2)  
• NIST 800-53 Rev 5 SC-36  
• NIST 800-53 Rev 5 SC-5(2)  
• NIST 800-53 Rev 5 SI-13(5) | • Improve availability | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/BTMIFVPUSJBQ  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/GMGXVALLWEBA  
• **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/OWVWXHTOQSYK  
• **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/ZFZUXSLEGCKV |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-t-2:control/TFXWZ SADFWQN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltow er:eu-north-1:control/GVTH RVBNLZLB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltow er:ap-south-1:control/NACE EPQFGKZT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltow er:ap-northeast-2:control/WOMTJFIXVURH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltow er:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XNJDGLJ0HAMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/HXJMEZAVXVYO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/LVDJEVJJJMV3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/SECDBDYCHCA0</td>
</tr>
</tbody>
</table>
## SH.AutoScaling.9

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.AutoScaling.9</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Manage vulnerabilities</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/VEIRXQKRRWAP</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/KKACTCVDRBMF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/SKBFDFDSPRTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/DV IOWKWKIFHK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/ XFPEFWDNOLGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/ EGWOHKNMPKMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/ TLYXCQULSGYQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/TYNAB OHYGDXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/RIPUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWTZYRU</td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1:control/IMDD CNRBWEEN</td>
</tr>
<tr>
<td>Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/UHHK ZSLKXCPG</td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/FPOPHNUDVCH</td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

The table lists control identifiers and framework APIs for various regions. Each region is associated with a unique control identifier and framework API, providing a structured way to manage and identify control objectives across different geographical locations.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RTZFSTKOXUDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/LUSXK/LYKYRGK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/CDSPF/AHUMRCA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/PEFXR/XSTWARS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SH.Autoscaling.5</td>
<td>NIST 800-53 Rev 5 AC-21</td>
<td>Limit network access</td>
<td>US East (N. Virginia) arn:aws:controltower:us-east-1::control/QVGJOLZXDNNY</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>US East (Ohio) arn:aws:controltower:us-east-2::control/HLVWEDLVEUES</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>US West (Oregon) arn:aws:controltower:us-west-2::control/CQYHNDCSDKO</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>Canada (Central) arn:aws:controltower:ca-central-1::control/IXJDZWZANLK0</td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/BRQEJBSCGCRN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/IHXGONQFSNTY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/VGDQYLMCBEM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/EZTDOMARRWE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Control identifier**
- SH.Autoscaling.5
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-north-1:control/DGQMJOMPDBGU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/NRPXJATICULB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/IYOEVGEYCOFV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/SH.Autoscaling.54659</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IRMFCHOIJRAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/VYYIA PRLJMXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/YPRLQ TSYFWEB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/TFRBK GKMRRKMW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.CloudTrail.1    | - CIS AWS Benchmark 1.4 3.1  
- NIST 800-53 Rev 5 AC-2(4)  
- NIST 800-53 Rev 5 AC-4(26)  
- NIST 800-53 Rev 5 AC-6(9)  
- NIST 800-53 Rev 5 AU-10  
- NIST 800-53 Rev 5 AU-12  
- NIST 800-53 Rev 5 AU-2  
- NIST 800-53 Rev 5 AU-3  
- NIST 800-53 Rev 5 AU-6(3)  
- NIST 800-53 Rev 5 AU-6(4)  
- NIST 800-53 Rev 5 CA-7  
- NIST 800-53 Rev 5 SC-7(9)  
- NIST 800-53 Rev 5 SI-3(8)  
- NIST 800-53 Rev 5 SI-4(20) | - Establish logging and monitoring | - US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/JSPHSKFGKKQC  
- US East (Ohio)  
arn:aws:controltower:us-east-2::control/KVDJVCPPNKRF  
- US West (Oregon)  
arn:aws:controltower:us-west-2::control/TKEVYJJCXGTI  
- Canada (Central)  
arn:aws:controltower:ca-central-1::control/RQFYEFHIOOMQ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Asia Pacific (Sydney)**
  arn:aws:controltower:ap-southeast-2::control/JOVYOCUBVQ

- **Asia Pacific (Singapore)**
  arn:aws:controltower:ap-southeast-1::control/MEWHPMwURIBQ

- **Europe (Frankfurt)**
  arn:aws:controltower:eu-central-1::control/PRVEFKIRBUOG

- **Europe (Ireland)**
  arn:aws:controltower:eu-west-1::control/ZSWMQFPPNNS

- **Europe (London)**
  arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>er:eu-west-2:control/FBWNWOPLCWCZ</td>
</tr>
<tr>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/IEJNYCAPCFWN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/HDXRGASZIBJR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/KUZDSXRCMEWW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/KUZDSXRCMEWW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>:control/AHVTLUTBIUMB</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-wes:t-3::control/rol/ZJRGXPPXVABV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America</td>
<td>arn:aws:controltower:sa-eas:t-1::control/rol/LWWWXXCWABFE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N.</td>
<td>arn:aws:controltower:us-wes:t-1::control/rol/JDZNMEXDKMCK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SH.CloudTrail.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.CloudTrail.2    | • CIS AWS Benchmark 1.4 3.7                     | • Encrypt data at rest             | • US East (N. Virginia)  
  arn:aws:controltower:us-east-1::control/TCMJVVYRGWMOM
• US East (Ohio)    | arn:aws:controltower:us-east-2::control/JAYTWZHKWRNB
• US West (Oregon)  | arn:aws:controltower:us-west-2::control/YHMCHLVAJGXW
• Canada (Central)  | arn:aws:controltower:ca-central-1::control/AGXOGGHCGROE
<p>|                    | • NIST 800-53 Rev 5 AU-9                        |                                    |                                                                         |
|                    | • NIST 800-53 Rev 5 CA-9(1)                     |                                    |                                                                         |
|                    | • NIST 800-53 Rev 5 CM-3(6)                     |                                    |                                                                         |
|                    | • NIST 800-53 Rev 5 SC-13                       |                                    |                                                                         |
|                    | • NIST 800-53 Rev 5 SC-28(1)                    |                                    |                                                                         |
|                    | • NIST 800-53 Rev 5 SC-7(10)                    |                                    |                                                                         |
|                    | • NIST 800-53 Rev 5 SI-7(6)                     |                                    |                                                                         |
|                    | • PCI DSS version 3.2.1 10.5                    |                                    |                                                                         |
|                    | • PCI DSS version 3.2.1 10.5.2                  |                                    |                                                                         |
|                    | • PCI DSS version 3.2.1 2.2                     |                                    |                                                                         |
|                    | • PCI DSS version 3.2.1 3.4                     |                                    |                                                                         |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/RHDAYMWQSNQM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/GJBSDWACBFQE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/GD BNBTCDAXFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/PNVPP ZDHTLDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/PLGOV UAZUWPL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/BJLE QOVHKVJH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/BJKT TLYAWQNP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/OESJOHRDGIP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/OMMCJBKYCGMK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/QRDXCEHXZQVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/FQYLTXGIKOOB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/BWPUAGFKHKFM</td>
</tr>
</tbody>
</table>
## SH.CloudTrail.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.CloudTrail.4    | • CIS AWS Benchmark 1.4 3.2  
• NIST 800-53 Rev 5  
AU-9  
• NIST 800-53 Rev 5  
SI-4  
• NIST 800-53 Rev 5  
SI-7(1)  
• NIST 800-53 Rev 5  
SI-7(3)  
• NIST 800-53 Rev 5  
SI-7(7)  
• PCI DSS version 3.2.1 10.5.5  
• PCI DSS version 3.2.1 11.5  
• PCI DSS version 3.2.1 2.2 | • Protect data integrity | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/RRKYS CJXWUGL  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/PQRKR AZHNQGQ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/RFTWG BDAOZZG  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/JV YZMZLDDDRJ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-2::control/RCLUACHBLUEJ</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-southeast-1::control/KDJOJWFSTFGL</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-central-1::control/BGAGHEOYWZSK</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-west-1::control/OHTOUHWXBHVL</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-west-1::control/OHTOUHWXBHVL</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/YMWJQ DYNLYGX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/MTOA BAQLNODU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/WYJY QDZHOUMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control: FZYQSNLLCPXQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control:</td>
</tr>
</tbody>
</table>

SH.CloudTrail.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DWZLU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LAUBFFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JRGUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UTCPMNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WFNGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YPJEAHO</td>
</tr>
</tbody>
</table>
## SH.CloudTrail.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.CloudTrail.5    | • CIS AWS Benchmark 1.4 3.4  
• NIST 800-53 Rev 5 AC-2(4)  
• NIST 800-53 Rev 5 AC-4(26)  
• NIST 800-53 Rev 5 AC-6(9)  
• NIST 800-53 Rev 5 AU-10  
• NIST 800-53 Rev 5 AU-12  
• NIST 800-53 Rev 5 AU-2  
• NIST 800-53 Rev 5 AU-3  
• NIST 800-53 Rev 5 AU-6(1)  
• NIST 800-53 Rev 5 AU-6(3)  
• NIST 800-53 Rev 5 AU-6(4)  
• NIST 800-53 Rev 5 AU-6(5)  
• NIST 800-53 Rev 5 AU-7(1)  
• NIST 800-53 Rev 5 AU-9(7)  | • Establish logging and monitoring | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/MSSQQOYZRTEE  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/ZLNHKOHADVEF  
• **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/BGLRJKKRJVJM  
• **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/UHRCNDTKYIUY |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/WRJBVWCCGCPA</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/NZAPCFA0UVSK</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-20</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/MJUAASUPXJU0</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/UWGSZEDUWTBP</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-central-1::control/MJUAASUPXJU0</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/SWWUB FUZIQOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/RALDKYFCIKBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-2::control/TNFFXMMEKNUK</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/TNFFXMMEKNUK</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/RALDKYFCIKBO</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>:control/OBOZWIHZL RUH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td>arn:aws:controltower:eu-wests-t-3:control/DZEZV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South America</td>
<td>arn:aws:controltower:sa-easts-t-1:control/UTZGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(São Paulo)</td>
<td>IHNTWLH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US West (N.</td>
<td>arn:aws:controltower:us-wests-t-1:control/WRYVR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td>QGCJFZD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.CloudTrail.6     | • CIS AWS Benchmark 1.4 3.3  
|                     | • NIST 800-53 Rev 5 AC-21  
|                     | • NIST 800-53 Rev 5 AC-3  
|                     | • NIST 800-53 Rev 5 AC-3(7)  
|                     | • NIST 800-53 Rev 5 AC-4  
|                     | • NIST 800-53 Rev 5 AC-4(21)  
|                     | • NIST 800-53 Rev 5 AC-6  
|                     | • NIST 800-53 Rev 5 AC-9  
|                     | • NIST 800-53 Rev 5 SC-7  
|                     | • NIST 800-53 Rev 5 SC-7(11)  
|                     | • NIST 800-53 Rev 5 SC-7(16)  
|                     | • NIST 800-53 Rev 5 SC-7(20)  
|                     | • NIST 800-53 Rev 5 SC-7(21)  
|                     | • NIST 800-53 Rev 5 SC-7(3)  
|                     | • Enforce least privilege  |
|                    | • US East (N. Virginia)  
|                     |  arn:aws:controltower:us-east-1::control/CYXBBWCLPWPU  
|                    | • US East (Ohio)  
|                     |  arn:aws:controltower:us-east-2::control/JUERNCJWDWDB  
|                    | • US West (Oregon)  
|                     |  arn:aws:controltower:us-west-2::control/LTDEQKMWOFLJ  
|                    | • Canada (Central)  
<p>|                     |  arn:aws:controltower:ca-central-1::control/WRMMSKCVGST  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/QETMRBRJTOKF</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/CXOPZYUABHOD</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.1</td>
<td></td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/DDNFHHXFQBU</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.2</td>
<td></td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/ZHLTXYZCMZJJ</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/ZHLTXYZCMZJJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- t-2:.control/TLITD EMOCENK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- th-1:.control/SCGF YJXAEBHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- th-1:.control/AKRY YJMCPEUJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- theast-2:.control/KMAFNPVVVNSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IQIGWUDMIDMK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/LALFKCQHELEU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/MTKJAFEDNUIY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/HFBYSOZTBSDM</td>
</tr>
</tbody>
</table>
## SH.CodeBuild.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.CodeBuild.1     | - NIST 800-53 Rev 5 SA-3  
                   |           | - Use strong authentication | • US East (N. Virginia)  
                   |           |                                |  
                   |           |                                | arn:aws:controltower:us-east-1::control/IKRQWXXPRIUG  
                   |           |                                | • US East (Ohio)  
                   |           |                                | arn:aws:controltower:us-east-2::control/VTTYJLQHCRP  
                   |           |                                | • US West (Oregon)  
                   |           |                                | arn:aws:controltower:us-west-2::control/QVAROLLMZG0A  
                   |           |                                | • Canada (Central)  
<pre><code>               |           |                                | arn:aws:controltower:ca-central-1::control/SGUSWAWCRFWN |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/OGBNWMEGMMNM</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/ECIANAYMRCIX</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/GJYCUMZXBOOX</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/KAHXKGGQNXKH</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/KAHXKGGQNXKH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-west-2:control/MSIHJHKZRCLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-th-1:control/FPFONXMHQKY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-th-1:control/ICYKSDRBZJB0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/TIHGQHSIUQES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/YDRNRDUTCDVY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/MElSCKPSEZZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America</strong> (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/XTQYGBNGCAXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/OEJFUDWRJQWA</td>
</tr>
</tbody>
</table>
## SH.CodeBuild.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.CodeBuild.2     | • NIST 800-53 Rev 5 IA-5(7)  
                     • NIST 800-53 Rev 5 SA-3  
                     • PCI DSS version 3.2.1 8.2.1 | • Use strong authentication | • **US East (N. Virginia)**
arf:aws:controltower:us-east-1::control/SNJCJYKNUBTW  
• **US East (Ohio)**
arf:aws:controltower:us-east-2::control/NEQISRROQVGV  
• **US West (Oregon)**
arf:aws:controltower:us-west-2::control/XKWAFIWDTOW  
• **Canada (Central)**
arf:aws:controltower:ca-central-1::control/YUAEVTSMXVYI |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/NENDYNYMGBAL</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/UDLMCNZRQMEI</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/ZRUUAKXXKYNQ</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/QSUUNZFUBPXG</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1::control/SH.CodeBuild.2</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/VMUOHSUKEGZY</td>
</tr>
</tbody>
</table>

- **Europe (Stockholm)**
  arn:aws:controltower:eu-nor th-1::control/VMUOHSUKEGZY

- **Asia Pacific (Mumbai)**
  arn:aws:controltower:ap-south-1::control/RBONONXLXNLM

- **Asia Pacific (Seoul)**
  arn:aws:controltower:ap-northeast-2::control-IHLKDRJWXUHX

- **Asia Pacific (Tokyo)**
  arn:aws:controltower:ap-northeast-1::control/
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AMKMYJENQHDH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/DZSVNXMIBQ0H</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/HNGUINPSTYDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/ZZTXDQPPPAWO</td>
</tr>
</tbody>
</table>
### SH.CodeBuild.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.CodeBuild.3     | • NIST 800-53 Rev 5 CA-9(1)  
|                    | • NIST 800-53 Rev 5 CM-3(6)  
|                    | • NIST 800-53 Rev 5 SC-13  
|                    | • NIST 800-53 Rev 5 SC-28  
|                    | • NIST 800-53 Rev 5 SC-28(1)  
|                    | • NIST 800-53 Rev 5 SI-7(6)  
|                    | • PCI DSS version 3.2.1 10.5  
|                    | • PCI DSS version 3.2.1 10.5.2  
|                    | • PCI DSS version 3.2.1 2.2  
|                    | • PCI DSS version 3.2.1 3.4  
|                    | • Encrypt data at rest  
|                    | • US East (N. Virginia)  
|                    |  arn:aws:controltower:us-east-1::control/PSTQZTBWYCPR  
|                    | • US East (Ohio)  
|                    |  arn:aws:controltower:us-east-2::control/RPWVHXRXWZUU  
|                    | • US West (Oregon)  
|                    |  arn:aws:controltower:us-west-2::control/FBFYJYXDGJDO  
|                    | • Canada (Central)  
|                    |  arn:aws:controltower:ca-central-1::control/NZBZRTLNLHRHC  

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/HBOJXAIXDHPV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/DMDCAEXHSYVD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/FCGGEPJWwZPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/RROQJCOSEBIO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/FUIOF BRISQWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/EYHV UBQYCYPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/AGXA YVCMISLI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/EAXVKDLAFMUI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
</tbody>
</table>

---

**Control identifier**

**Framework**

**Control objective**

**Control API identifiers, by Region**

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/FUIOF BRISQWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/EYHV UBQYCYPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/AGXA YVCMISLI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/EAXVKDLAFMUI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>CJRJPNDUPVHS</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-wes</td>
<td></td>
<td>t-3:control/ODQHQAUDEECO</td>
</tr>
<tr>
<td>• South America</td>
<td>arn:aws:controltower:sa-eas</td>
<td></td>
<td>BYNYO SFMYPZQ</td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N.</td>
<td>arn:aws:controltower:us-wes</td>
<td></td>
<td>OQKHMQZTXWKT</td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SH.CodeBuild.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.CodeBuild.4     | • NIST 800-53 Rev 5 AC-2(12)       | • Establish logging and monitoring                     | • US East (N. Virginia)  
  arn:aws:controltower:us-east-1::control/HQVCCVHGQAzb  
  • US East (Ohio)  
  arn:aws:controltower:us-east-2::control/HMIMEZDEFGZN  
  • US West (Oregon)  
  arn:aws:controltower:us-west-2::control/RUQCXNA0EZ0B  
  • Canada (Central)  
  arn:aws:controltower:ca-central-1::control/KWXNGCKXFPFJ |
<p>|                    | • NIST 800-53 Rev 5 AC-2(4)        |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 AC-4(26)       |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 AC-6(9)        |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 AU-10          |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 AU-12          |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 AU-2           |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 AU-3           |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 AU-6(3)        |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 AU-6(4)        |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 AU-9(7)        |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 CA-7           |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 SC-7(9)        |                                                        |                                                       |
|                    | • NIST 800-53 Rev 5 SI-3(8)        |                                                        |                                                       |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SI-4</td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-2:control/NQSLJQHQTLKU</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong>&lt;br&gt;arn:aws:controltower:ap-southeast-1:control/VMCOHOQCISWJ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong>&lt;br&gt;arn:aws:controltower:eu-central-1:control/FRTPFQMERZYU</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong>&lt;br&gt;arn:aws:controltower:eu-west-1:control/EQRAZACXKPRQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong>&lt;br&gt;arn:aws:controltower:eu-west-1:control/EQRAZACXKPRQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/KFJKYEFRMELB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor-th-1:control/RAWB SXYDHUPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/VZJS HORKBLYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control-2:DEBWVFLXAGZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control-1:</td>
</tr>
</tbody>
</table>

SH.CodeBuild.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/WUOXVMEZAFHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/LWFGG PAZXPFV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/KCHFP NLICGCG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/WLKIHB BPDPWPS</td>
</tr>
</tbody>
</table>
### SH.CodeBuild.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.CodeBuild.5</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-t-1::control/KMMZL EUZMTDU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-t-2::control/UNCDC NTDDSUE</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-t-2::control/ENIPG UAUEXSC</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/HI RXVHWDXNSB</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/CLWTRMGMVZRRH</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/EIJPCZEIKHZD</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/UYNIPDHPSIEL</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/GGGXGEKTWZ</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/GGGXGEKTWZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/OQLYJ KDVWGRQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu:eu-nor th-1::cont rol/SRBX TCCBLCPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/LSIS WPBSPNUR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/AHXTFEFIXPTX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/AHXTFEFIXPTX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IQPNJANYQCRG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/KWJBHXYGTTUO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/WKHUBEFCVPQS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/LVDVTWZOBMPK</td>
</tr>
<tr>
<td>SH.DMS.1</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/TJKXNFIKOWSN</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td>• Enforce least privilege</td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/TXOKWLKNHF0E</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/JPRWVQHPQWQX</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/AAJEZEBPCKQN</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/DHOJQSKCRIQH</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/PZGUNNSCNTBM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/UGTQRQUDPFTC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/AIHUA MECLLHS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/UXZLDXFJSJK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/XS00ILKWTSYF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/GIDDGGAFOUJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/KKKTHLMBCTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/KKKTHLMBCTI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MIMZFVUEANJV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/FJWDH HBNJGDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/VEFFW EQXYOSJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/SVRXV KHILILC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.DMS.9          | • NIST 800-53 Rev 5 AC-4   | • Encrypt data in transit | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/CHJURWZBZZI |
|                   |   • NIST 800-53 Rev 5 SC-13 |                  | • US East (Ohio)  
ar:aws:controltower:us-east-2::control/FNOKNMZKHYYT |
|                   |   • NIST 800-53 Rev 5 SC-23 |                  | • US West (Oregon)  
ar:aws:controltower:us-west-2::control/OBODYBXTJMOY |
|                   |   • NIST 800-53 Rev 5 SC-23(3) |                | • Canada (Central)  
ar:aws:controltower:ca-central-1::control/HY0QASRNNLKH |
<p>|                   |   • NIST 800-53 Rev 5 SC-7(4) |                |                     |
|                   |   • NIST 800-53 Rev 5 SC-8 |                  |                     |
|                   |   • NIST 800-53 Rev 5 SC-8(1) |                |                     |
|                   |   • NIST 800-53 Rev 5 SC-8(2) |                |                     |
|                   |   • PCI DSS version 3.2.1 2.3 |                |                     |
|                   |   • PCI DSS version 3.2.1 4.1 |                |                     |
|                   |   • PCI DSS version 3.2.1 8.2.1 |              |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/CSLQWAPSNYMD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/GXUWCLHGXXHS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/GU DZJBSLRTUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/ZPKNJ QUKZDVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/t_formats/WNTXE LAFYVQG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/TOKZ OYWBHNHCV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/UNTG IPBGZWDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control-2::control/CLQMFXIUXTDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/SH.DMS.94707</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PJKHUCTAVOZO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/BJXJTJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FZCWOGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/RJCGXI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DRMCMRO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/USZWE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DXFJQRQ</td>
</tr>
</tbody>
</table>
## SH.DocumentDB.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.DocumentDB.3    | • NIST 800-53 Rev 5 AC-21  
                   | • NIST 800-53 Rev 5 AC-3  
                   | • NIST 800-53 Rev 5 AC-3(7)  
                   | • Enforce least privilege  
                   | • US East (N. Virginia)  
                   | • US East (Ohio)  
                   | • US West (Oregon)  
                   | • Canada (Central)  |  
|                    | • NIST 800-53 Rev 5 AC-4  
                   | • NIST 800-53 Rev 5 AC-4(21)  
                   | • NIST 800-53 Rev 5 AC-6  
                   | • NIST 800-53 Rev 5 SC-7  
                   | • NIST 800-53 Rev 5 SC-7(11)  
                   | • NIST 800-53 Rev 5 SC-7(16)  
                   | • NIST 800-53 Rev 5 SC-7(20)  
                   | • NIST 800-53 Rev 5 SC-7(21)  
                   | • NIST 800-53 Rev 5 SC-7(3)  
                   | • NIST 800-53 Rev 5 SC-7(4)  
                   | • NIST 800-53 Rev 5 SC-7(9)  
                   | • arn:aws:controltower:us-east-1::control/ZMVACKXBQOZS  
                   | • arn:aws:controltower:us-east-2::control/HSLNNBLCHKLM  
                   | • arn:aws:controltower:us-west-2::control/AIQPFTZTJQOD  
<pre><code>               | • arn:aws:controltower:ca-central-1::control/JKHVVRTZQZZT |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/WMKKHIOYHNFP</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/AHCCQFKRLYDA</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/BQDHWQQBRZLT</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/KXCDBNHBDDKTF</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1::control/KXCDBNHBDDKTF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong>: eu-wes-2:control/QHSRZ CJBUCQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong>: eu-nor-1:control/GAVM NOAPGIIO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong>: ap-south-1:control/ZGFV WYFZCTDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong>: ap-northeast-2:control/JVHTNANJBMD5</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KAACGTYKENKG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/EIPKRKMDQFWW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/SPJOGWICINEF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/MVDOKECXSJAK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
</tbody>
</table>
| SH.DynamoDB.1       | • NIST 800-53 Rev 5 CP-10  
                      • NIST 800-53 Rev 5 CP-2(2)  
                      • NIST 800-53 Rev 5 CP-6(2)  
                      • NIST 800-53 Rev 5 SC-36  
                      • NIST 800-53 Rev 5 SC-5(2)  
                      • NIST 800-53 Rev 5 SI-13(5) | • Improve availability | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/XQGJDGQQKGCR  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/RIGUEEZBEMB  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/SQFKXDJCSXNS  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/BPAFLCPHAROG |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/QZTZVYPQVDAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/URWYQJCVIFQK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/QCynecbghsJFX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/PEJTXAODKVKD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-wes t-2::control/EKJWC MKGILMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/SMOV ILGCYEMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control-2: :control/B EJCXBYW0VAJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control:</td>
</tr>
</tbody>
</table>

SH.DynamoDB.1 4715
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XNME0WFBWSUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west::control/ATQHG WQORVYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas::control/YWDDV VHCZASI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes::control/EKZBB LXTMJQR</td>
</tr>
</tbody>
</table>
SH.DynamoDB.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.DynamoDB.2</td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Improve resiliency</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/ITCPFZTGHOG</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/HKFSWAKSTGQF</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-9</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/QKJWJTTLZAEH</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/LEFDCDBLZGBP</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/SCPPKINQMZAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/LVADITNDSYBI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/YSIWDENULVGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/QJRPWNBCTHUF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/QJRPWNBCTHUF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control:ZREATEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northern-1:control:OVILEAIY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1:control:MOXHJYFR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control:EUJVJQYTHQHZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control:EUJVJQYTHQHZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ELRZAXWJYGNK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/URJSZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZMBWZPK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/EVCIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OSOHSM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/PKTHI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PMCRROS</td>
</tr>
</tbody>
</table>
## SH.DynamoDB.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.DynamoDB.3       |           | Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/IMLSFCKTXCBG  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AJAII LPVXLOK  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/VPKJJQGPZEHI  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/HZ UVKONSUUYX |
|                    | NIST 800-53 Rev 5 CA-9(1) |                   | • Encrypt data at rest |
|                    | NIST 800-53 Rev 5 CM-3(6) |                   | |
|                    | NIST 800-53 Rev 5 SC-13 |                   | |
|                    | NIST 800-53 Rev 5 SC-28 |                   | |
|                    | NIST 800-53 Rev 5 SC-28(1) |                   | |
|                    | NIST 800-53 Rev 5 SC-7(10) |                   | |
|                    | NIST 800-53 Rev 5 SI-7(6) |                   | |
|                    | PCI DSS version 3.2.1 3.4 |                   | |

- PCI DSS version 3.2.1 3.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/NJASDOEDZRUE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/VYIIVEBIEDCW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/QC0JTUQOGZKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/EGNSOWWEVSBK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/SJFVJFYIXZJF</td>
<td></td>
<td>er:eu-west-2::control/NMOWQQDRNKDI</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southeast-1::control/YAJUTGHZORVU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/YAJUTGHZORVU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/YAJUTGHZORVU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>

- **Europe (Paris)**
  - arn:aws:controltower:eu-west-3::control/YVWIXUILMDIT

- **South America (São Paulo)**
  - arn:aws:controltower:sa-east-1::control/UDBGKEJJRJEZ

- **US West (N. California)**
  - arn:aws:controltower:us-west-1::control/FURDEVJLKLKR
## SH.EC2.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.EC2.1</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-8(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **US East (N. Virginia)**
  - arn:aws:controltower:us-east-1::control/FKQAQCYRILAK
- **US East (Ohio)**
  - arn:aws:controltower:us-east-2::control/GFOMMGTLUCZR
- **US West (Oregon)**
  - arn:aws:controltower:us-west-2::control/TKXNMRFIMBEQ
- **Canada (Central)**
  - arn:aws:controltower:ca-central-1::control/ZPHSVMVQ0EUE
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/QNCIIGXDITVK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/BDCQIYFJGZW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/TTSVJOMQQLTN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/UBCGK0ORFCMO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/XQBHI IQWUMXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/YYXT TLZPXPSK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/DCYW BSWPHALS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/VHSRRHUYSMZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FLYKUCWHEFPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/ FBQFD KYYJSVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ OXADC ZVJFRQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ DVKTN ARVQCPJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SH.EC2.10</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/CMHFRDIISEAB</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/ZRINADVUBTHV</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/PIVIHIALZUGQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/LQLAWRXDYGTC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1::control/LQLAWRXDYGTC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/VLMGU AIXJOHE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/IOUV RZZHPJUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/HBYP EKUWCTB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/OXFAIHYQZTPL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/OXFAIHYQZTPL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EPXMGYKIWOPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong> arn:aws:controltower:eu-west-3::control/IPUXY YDAQXVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong> arn:aws:controltower:sa-east-1::control/NSIDNZTQONXLB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong> arn:aws:controltower:us-west-1::control/HWCKDHWPEZMG</td>
</tr>
</tbody>
</table>

**Control objective**

- **Europe (Paris)**
- **South America (São Paulo)**
- **US West (N. California)**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EC2.15          | - NIST 800-53 Rev 5 AC-21  
|                    | - NIST 800-53 Rev 5 AC-3  
|                    | - NIST 800-53 Rev 5 AC-3(7)  
|                    | - NIST 800-53 Rev 5 AC-4  
|                    | - NIST 800-53 Rev 5 AC-4(21)  
|                    | - NIST 800-53 Rev 5 AC-6  
|                    | - NIST 800-53 Rev 5 SC-7  
|                    | - NIST 800-53 Rev 5 SC-7(11)  
|                    | - NIST 800-53 Rev 5 SC-7(16)  
|                    | - NIST 800-53 Rev 5 SC-7(20)  
|                    | - NIST 800-53 Rev 5 SC-7(21)  
|                    | - NIST 800-53 Rev 5 SC-7(3)  
|                    | - NIST 800-53 Rev 5 SC-7(4)  
|                    | - NIST 800-53 Rev 5 SC-7(9)  
|                    | - Limit network access  
|                    | **US East (N. Virginia)**  
|                    | arn:aws:controltower:us-east-1::control/RJQGGVJZEBLT  
|                    | **US East (Ohio)**  
|                    | arn:aws:controltower:us-east-2::control/ULHSISJQFEQF  
|                    | **US West (Oregon)**  
|                    | arn:aws:controltower:us-west-2::control/JSFKRLFHAKSN  
|                    | **Canada (Central)**  
|                    | arn:aws:controltower:ca-central-1::control/JNIOFIQSINQA  

SH.EC2.15
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/VSUCLWGVQLDF</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/FMFHQQRLYTFU</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/DUHHRMNTZCWB</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/DJQXFKSNOMLU</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control::YZCNT HFDJZSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower::eu-north-1::control::KUWH VRCLYOJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower::ap-south-1::control::LHHY JCUXFCSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower::ap-northeast-2::control::HDFINDBKXQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower::ap-northeast-1::control::</td>
</tr>
</tbody>
</table>

**Control objective**

- **Enforce a minimum password length** ensures that passwords in your accounts are strong enough to protect your resources from accidental or malicious unauthorized access. This is critical for maintaining the confidentiality and integrity of your data and ensuring business continuity. A strong password policy contributes to a holistic, multi-layered security approach, where multiple strategies are integrated to safeguard against cyber threats.

**Control API identifiers, by Region**

- **Europe (Stockholm)** arn:aws:controltower::eu-north-1::control::KUWH VRCLYOJB
- **Asia Pacific (Mumbai)** arn:aws:controltower::ap-south-1::control::LHHY JCUXFCSE
- **Asia Pacific (Seoul)** arn:aws:controltower::ap-northeast-2::control::HDFINDBKXQR
- **Asia Pacific (Tokyo)** arn:aws:controltower::ap-northeast-1::control::
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/NBJEXIHGIXES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/EIQBRXFUPGMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/QWARLTYJMMMAA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/MWTJUNYUOGVR</td>
</tr>
</tbody>
</table>
## SH.EC2.16

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EC2.16          | • NIST 800-53 Rev 5 CM-8(1)                     | • Protect configurations | • US East (N. Virginia)  
                       | • PCI DSS version 3.2.1 2.4                     |                    |          
                       |                                                 |                   | arn:aws:controltower:us-east-1::control/LITUI AJFCNLG |
                       |                                                 |                   | • US East (Ohio)          
                       |                                                 |                   | arn:aws:controltower:us-east-2::control/QSBUZ ZBZQGLT |
                       |                                                 |                   | • US West (Oregon)        
                       |                                                 |                   | arn:aws:controltower:us-west-2::control/PBGUI XCOFNGC |
                       |                                                 |                   | • Canada (Central)        
<pre><code>                   |                                                 |                   | arn:aws:controltower:ca-central-1::control/JO QQKGOKQTZN |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/EVNHPWACQHEA</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/DSMIAZVJBJYE</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/KXJKNJEDTXLK</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/HOTICCOJPNKR</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/HOTICCOJPNKR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/UKRQ/RKXRAMKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-northern-1:control/WHQJ/LTOONSGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/UNXYUHCHQWYQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/unx</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EHGVCOKGQGMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/DROYT_LJVMLBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/SSWLJ_OJKAOLL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/GDAEW_NRGJIWZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| SH.EC2.17          | NIST 800-53 Rev 5 AC-4(21) | Limit network access | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/ODNGXSKYGCAN  
US East (Ohio)  
arn:aws:controltower:us-east-2::control/GDSOIWYATGNN  
US West (Oregon)  
arn:aws:controltower:us-west-2::control/DEEWSUBUCMPE  
Canada (Central)  
arn:aws:controltower:ca-central-1::control/HPCENFROXVMO |
|                    | PCI DSS version 3.2.1 2.2 |                  | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/ODNGXSKYGCAN  
US East (Ohio)  
arn:aws:controltower:us-east-2::control/GDSOIWYATGNN  
US West (Oregon)  
arn:aws:controltower:us-west-2::control/DEEWSUBUCMPE  
Canada (Central)  
arn:aws:controltower:ca-central-1::control/HPCENFROXVMO |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/LWYOJLPCBZPK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/HETFYOGBFWSA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/VRWUTNMJEXZW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/XGPQWTUUGBBB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/XGPQWTPUGBBB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HJJLV NYZLCKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:control/tower:eu-north-1:control/NFPE RWALALZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:control/tower:ap-south-1:control/SLCE EBHVDJFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:control/tower:ap-northeast-2:control WXFFLHKVJHMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:control/tower:ap-northeast-1:control</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/URWTJDZBOHEP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/ZQARMCQAPSWW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/FAADSZJAEWQP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/UELUSCFFWQBU</td>
</tr>
</tbody>
</table>
## SH.EC2.18

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.EC2.18</td>
<td>• NIST 800-53 Rev 5 AC-4&lt;br&gt;• NIST 800-53 Rev 5 AC-4(21)&lt;br&gt;• NIST 800-53 Rev 5 SC-7&lt;br&gt;• NIST 800-53 Rev 5 SC-7(11)&lt;br&gt;• NIST 800-53 Rev 5 SC-7(16)&lt;br&gt;• NIST 800-53 Rev 5 SC-7(21)&lt;br&gt;• NIST 800-53 Rev 5 SC-7(4)&lt;br&gt;• NIST 800-53 Rev 5 SC-7(5)&lt;br&gt;• PCI DSS version 3.2.1 1.2.1&lt;br&gt;• PCI DSS version 3.2.1 1.3&lt;br&gt;• PCI DSS version 3.2.1 1.3.1&lt;br&gt;• PCI DSS version 3.2.1 1.3.2&lt;br&gt;• PCI DSS version 3.2.1 1.3.4&lt;br&gt;• PCI DSS version 3.2.1 1.3.6</td>
<td>• Limit network access&lt;br&gt;• Enforce least privilege</td>
<td>• US East (N. Virginia)&lt;br&gt;arn:aws:controltower:us-east-1::control/BKEEVLXJOIZI&lt;br&gt;• US East (Ohio)&lt;br&gt;arn:aws:controltower:us-east-2::control/VFZNFXKWHKOV&lt;br&gt;• US West (Oregon)&lt;br&gt;arn:aws:controltower:us-west-2::control/USRKPTPFWXBG&lt;br&gt;• Canada (Central)&lt;br&gt;arn:aws:controltower:ca-central-1::control/KEIKZYHHGWJS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/UPVTHTZVSLWE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/DCMKUVKUGLNS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/BTPGDLJBAMQH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/VQQNYOUTJQTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1::control/VQQNYOUTJQTV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/KZWNX DXYBTQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:control/tower:eu-nor-th-1:control/KFLX JOLWUWRB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:control/tower:ap-south-east-1:control/CMOV KNTIMGOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:control/tower:ap-northeast-2:control/PULYBIGQAMIU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:control/tower:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

---

**SH.EC2.18**

**4747**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/WUKBMIIHWTCEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:t-3:control/VDINNRTBMHLP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:t-1:control/JRKGCRIEFEMDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:t-1:control/XYCETKWSMKJ</td>
</tr>
</tbody>
</table>
## SH.EC2.19

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.EC2.19</td>
<td>• CIS AWS Benchmark 1.4 5.2</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/KTVMU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td>AUBZNOK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/QUNSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZSYEABZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/QMYRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RVYDWYC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/FQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HRPTPPXKUX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
</tbody>
</table>
| • PCI DSS version 3.2.1 1.3 | | | • Asia Pacific (Sydney)  
ar:aws:controltower:ap-southeast-2:control/SQJOUZGFKZPV |
| • PCI DSS version 3.2.1 1.3.1 | | | • Asia Pacific (Singapore)  
ar:aws:controltower:ap-southeast-1:control/KEGFOACYSSZL |
| • PCI DSS version 3.2.1 1.3.2 | | | • Europe (Frankfurt)  
ar:aws:controltower:eu-central-1::control/BZIXCRFOIRCT |
| • PCI DSS version 3.2.1 1.3.4 | | | • Europe (Ireland)  
ar:aws:controltower:eu-west-1::control/NRXPLVWHAEYX |
| • PCI DSS version 3.2.1 2.2 | | | • Europe (London)  
ar:aws:controltower:eu-west-1::control/NRXPLVWHAEYX |
<p>| • PCI DSS version 3.2.1 2.2.2 | | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/FMQRF KULNUDA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/SQRE YUUVC PAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/VYOU BCPPBFTY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/OSTTYXVZPAKB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/OSTTYXVZPAKB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/IKDBYKSLBFC0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/UUDRYIGIGXK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/UHFTWFYBFECZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/LUHDJKRHUFPA</td>
</tr>
</tbody>
</table>
# SH.EC2.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.EC2.2</td>
<td>• CIS AWS Benchmark 1.4 5.1</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• CIS AWS Benchmark 1.4 5.3</td>
<td>• Enforce least privilege</td>
<td>arn:aws:controltower:us-east-1::control/CBXAVYGTSXPR</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/TWIVJPDMFMYR</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/MVCYH CJCTHKQ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/AR HTRDLRM0ZS</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-8(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>CP-6(2)</td>
<td></td>
<td>Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SC-5(2)</td>
<td></td>
<td>Asia Pacific (Singapore)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SC-7</td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/FXJGCOYWIZGN</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SC-7(11)</td>
<td></td>
<td>Europe (Frankfurt)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SC-7(16)</td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/GNOQGMZNQKDC</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SC-7(20)</td>
<td></td>
<td>Europe (Ireland)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SC-7(21)</td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/TPTBSUKLVYNV</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SC-7(3)</td>
<td></td>
<td>Europe (London)</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SC-7(4)</td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/TPTBSUKLVYNV</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SC-7(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SC-7(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SI-13(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1</td>
<td>1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1</td>
<td>1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>er:eu-wes-t-2:control/YXDRB SXGLSYA</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/FWYHQCQTNVVVT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/HRILSVBGXGGB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/YPREQUJHSESEG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XKATTEDRNKXM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/TOOHOTFIXLP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/SUPD KRQJNDKG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/FYKFH CWIPZEZ</td>
</tr>
</tbody>
</table>
## SH.EC2.20

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.EC2.20</td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Improve availability</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/SYKJWOLYPQAG</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/YXCGFXLUMVWD</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/TCELFANHENOF</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/KLGUNNBLXGKP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/XSSLFGGJDHRI</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/IXQPOKDTASVW</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/RJZXMCZOENJK</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/RNARDQCXVMPD</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-2:control/QKHKX0CLKMPH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-2:control/QQIFUCSRDDNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/ODPVIBBCEMZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/QKHKX0CLKMPH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DJMCSTIIICRBQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/LAQNP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JIXGRKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/FVMQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YGBWWPP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/HCJDM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UGMARUR</td>
</tr>
</tbody>
</table>
## SH.EC2.21

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EC2.21          | • CIS AWS Benchmark 1.4 5.1                                               | • Limit network access     | • US East (N. Virginia)  
|                    | • NIST 800-53 Rev 5 AC-4(21)                                              |                            |   arn:aws:controltower:us-east-1::control/AVYCVZQFCQNU                   |
|                    | • NIST 800-53 Rev 5 CA-9(1)                                                |                            | • US East (Ohio)  
|                    | • NIST 800-53 Rev 5 CM-2                                                   |                            |   arn:aws:controltower:us-east-2::control/PCTQSZLBOZMZ                   |
|                    | • NIST 800-53 Rev 5 CM-2(2)                                                |                            | • US West (Oregon)  
|                    | • NIST 800-53 Rev 5 CM-7                                                   |                            |   arn:aws:controltower:us-west-2::control/DZFUOZUQSVYE                  |
|                    | • NIST 800-53 Rev 5 SC-7                                                   |                            | • Canada (Central)  
<p>|                    | • NIST 800-53 Rev 5 SC-7(21)                                               |                            |   arn:aws:controltower:ca-central-1::control/KMVIVYSEGFWX               |
|                    | • NIST 800-53 Rev 5 SC-7(5)                                                |                            |                           |
|                    | • PCI DSS version 3.2.1 1.2.1                                              |                            |                           |
|                    | • PCI DSS version 3.2.1 1.3                                                |                            |                           |
|                    | • PCI DSS version 3.2.1 1.3.1                                              |                            |                           |
|                    | • PCI DSS version 3.2.1 1.3.2                                              |                            |                           |
|                    | • PCI DSS version 3.2.1 1.3.4                                              |                            |                           |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/YLOHXVLEFUBG</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/LQNNHNWZOCVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/FLCQBKGZAFLW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/YMSHA PVGFZMR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-t-2::control/WZMUK RGPSNQX</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor-th-1::control/ZAVX SARXKIWB</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-th-1::control/SOUT WZRNWHMC</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor-theast-2::control/ZXUCI0CDKWSE</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor-theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Europe (Paris)**
  arn:aws:controltower:eu-west-3::control/BISPH FGOSVPQ

- **South America (São Paulo)**
  arn:aws:controltower:sa-east-1::control/IJPYB WJTJRXN

- **US West (N. California)**
  arn:aws:controltower:us-west-1::control/KDDCT DCWJFZM
### SH.EC2.22

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EC2.22          | • NIST 800-53 Rev 5 CM-8(1)  
                     • PCI DSS version 3.2.1 2.2  
                     • PCI DSS version 3.2.1 2.4 | • Protect configurations  
                     • Limit network access | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/DKOGNVMOVXDM  
• US East (Ohio)  
ar:aws:controltower:us-east-2::control/ZIDBSURCQSXP  
• US West (Oregon)  
ar:aws:controltower:us-west-2::control/SPMPWQSGOLSG  
• Canada (Central)  
ar:aws:controltower:ca-central-1::control/AHMNFXCLBAVD |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/AJFFKKXRAFMB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/POVUMUFWGDAQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/WDLHCVPRLKUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/SQHQBAO0KFRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/WNSAW/PARROT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-1::control/COFG/IGMLJYOG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/YSMQ/IQVOSFYA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/LPKINEKDDRBM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/SH.EC2.224767</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/SVKEFFMYBGM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-t-3:control/OKAMDKPODGVH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America</strong> (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-t-1:control/DOWAGDSRKWQT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-t-1:control/MEQBWNTEFWIE</td>
</tr>
</tbody>
</table>
## SH.EC2.23

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EC2.23          | - NIST 800-53 Rev 5 AC-4(21)  
                     - NIST 800-53 Rev 5 CA-9(1)  
                     - NIST 800-53 Rev 5 CM-2  
                     - PCI DSS version 3.2.1 1.2.1  
                     - PCI DSS version 3.2.1 1.3  
                     - PCI DSS version 3.2.1 1.3.2  
                     - PCI DSS version 3.2.1 1.3.4 | - Limit network access | - US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/RHHFSXUVOLEM  
- US East (Ohio)  
arn:aws:controltower:us-east-2::control/QBRSVXZPDEVQ  
- US West (Oregon)  
arn:aws:controltower:us-west-2::control/NRT0UZZSTMBL  
- Canada (Central)  
arn:aws:controltower:ca-central-1::control/UQZLLSOWWAAT |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>ap-southeast-2:control/</td>
<td>QKRVHRZEHOZZ</td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>ap-southeast-1:control/</td>
<td>HOMZIRWWCSWU</td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>eu-central-1:control/</td>
<td>QF TGGFGWTDTI</td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>eu-west-1:control/</td>
<td>OVJGV TKPMGPG</td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/RZAYU RLGLITJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/YCLK RCLZPSAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/MPTU HRDKCFSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control-2:JHWDNMKPAYRK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QFKXMWQOYSLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/MKPOBINBPVJP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/EBHYPMTFLIHR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/TROVUNZNPSAT</td>
</tr>
</tbody>
</table>
### SH.EC2.25

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EC2.25          | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20)  
• NIST 800-53 Rev 5 SC-7(21)  
• NIST 800-53 Rev 5 SC-7(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-7(9) | • Limit network access | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/YCRFUQNWQGOU  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/KPVGGAGMRUAT  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/FYFOMHKXJRNV  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/GGJF0DCQQCED |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/QRHEHTVORUEM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/NSCQQNUEXPIM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/VUWLCAOPMGSK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/LKSBZRZYHPVM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1:control/LKSBZRZYHPVM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/ctgqqu</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> (arn:aws:controltower:eu-north-1:control/EXZU BEASRXGZ)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> (arn:aws:controltower:ap-south-1:control/UXLJDHFLBJUT)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> (arn:aws:controltower:ap-northeast-2:control/ZLOKQIGTIHZD)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> (arn:aws:controltower:ap-northeast-1:control/ZLOKQIGTIHZD)</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EVOXPWVDVNV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/DRAUXWZUwCMJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-1::control/SFJZGXMIEGNS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/XFLFCYPAZYWT</td>
</tr>
</tbody>
</table>
## SH.EC2.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EC2.3           | • NIST 800-53 Rev 5 CA-9(1) | Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/GPEXDJMAYQR |
|                    | • NIST 800-53 Rev 5 CM-3(6) |                           | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/MAVIODWGWGFU |
|                    | • NIST 800-53 Rev 5 SC-13    |                           | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/LUWJGYMHHG |
|                    | • NIST 800-53 Rev 5 SC-28    |                           | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/IEYBLJBRQTUY |
<p>|                    | • NIST 800-53 Rev 5 SC-28(1) |                           |                     |
|                    | • NIST 800-53 Rev 5 SC-7(10) |                           |                     |
|                    | • NIST 800-53 Rev 5 SI-7(6)  |                           |                     |
|                    | PCI DSS version 3.2.1 2.2    |                           |                     |
|                    | PCI DSS version 3.2.1 3.4    |                           |                     |
|                    | PCI DSS version 3.2.1 8.2.1  |                           |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/QJPYFHYYTIDF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/CXPQSRUAETB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/ODNWHJRAO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/BXLYFODSWQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/TBZTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HAAEMWV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/WSOD WMGKOUOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/WKHA UMVQJHBL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control:SVKZ0QVUBAEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control:SVKZ0QVUBAEW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RKVSDKLNGBTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/VDKPJCLCXQXP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/TYBCYJHHUZHB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/OPFUDJAJJEQG</td>
</tr>
</tbody>
</table>
### SH.EC2.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EC2.4           | • NIST 800-53 Rev 5 CA-9(1)  
                        • NIST 800-53 Rev 5 CM-2  
                        • NIST 800-53 Rev 5 CM-2(2)  
                        • PCI DSS version 3.2.1 2.4 | • Optimize costs | • US East (N. Virginia)  
  arn:aws:controltower:us-east-1::control/GTXSQEJWOBFI  
• US East (Ohio)  
  arn:aws:controltower:us-east-2::control/CVCROVPNPPCG  
• US West (Oregon)  
  arn:aws:controltower:us-west-2::control/FICBNNTRAXTL  
• Canada (Central)  
  arn:aws:controltower:ca-central-1::control/KWVQHHYVRNDF |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/TWWDQASEKNOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/YPHZLBGOPEEF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/RJYQZKDGGPZO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/EJXFSQMMOBAU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/ MKJYA FFLOUTW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower: eu-nor th-1::control/ SVYL MDWLNEDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower: ap-south-1::control/ FTPN AYEWDTJT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower: ap-northeast-2::control/ QVKVKMNHBRCV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower: ap-northeast-1::control/ SH.EC2.4 4783</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HXHUZBBSJPTR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong> arn:aws:controltower:eu-west:t-3:control/CUCAOWNGMHEU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong> arn:aws:controltower:sa-east:t-1:control/QOZOELBFZTCX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong> arn:aws:controltower:us-west:t-1:control/VBBWMDZZYTJK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.EC2.6           | - CIS AWS Benchmark 1.4 3.9  
- NIST 800-53 Rev 5 AC-4(26)  
- NIST 800-53 Rev 5 AU-12  
- NIST 800-53 Rev 5 AU-2  
- NIST 800-53 Rev 5 AU-3  
- NIST 800-53 Rev 5 AU-6(3)  
- NIST 800-53 Rev 5 AU-6(4)  
- NIST 800-53 Rev 5 CA-7  
- NIST 800-53 Rev 5 SI-7(8)  
- PCI DSS version 3.2.1 10.1  
- PCI DSS version 3.2.1 10.3.1  
- PCI DSS version 3.2.1 10.3.2  
- PCI DSS version 3.2.1 10.3.3  
- PCI DSS version 3.2.1 10.3.4 | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/BEEYZGSRRAZM  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/KGITVPNAWVRN  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/PDPODRNNTZOK  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/ZLDNISDVIX |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/NZTMIPSZHEMV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/C0KPYBGATQFC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/FWYAUKSIVHLF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/EKEHTOJRBETQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

- PCI DSS version 3.2.1 10.3.5
- PCI DSS version 3.2.1 10.3.6
- PCI DSS version 3.2.1 2.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-2:control/CTTUX WTGFADQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/XMDS IZZAWLKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/XSSF YRGJZNXH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/GIBTSEIVFPKI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/GIBTSEIVFPKI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/OTTDUNOMCDCZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/FWEXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OKAJABW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/VBVVY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZQYOWSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/UJGZY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PQJITPC</td>
</tr>
</tbody>
</table>
## SH.EC2.7

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EC2.7            | • CIS AWS Benchmark 1.4 2.2.1  
                      • NIST 800-53 Rev 5 CA-9(1)  
                      • NIST 800-53 Rev 5 CM-3(6)  
                      • NIST 800-53 Rev 5 SC-13  
                      • NIST 800-53 Rev 5 SC-28  
                      • NIST 800-53 Rev 5 SC-28(1)  
                      • NIST 800-53 Rev 5 SC-7(10)  
                      • NIST 800-53 Rev 5 SI-7(6)  
                      • PCI DSS version 3.2.1 2.2  
                      • PCI DSS version 3.2.1 3.4  
                      • PCI DSS version 3.2.1 8.2.1 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/AIOQAEVYZWFE  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/OYKQLAORAIBS  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/JONOVBLPBAW  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XGNQTADZLIOK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • Asia Pacific (Sydney)  
arn:aws:controltower:ap-southeast-2:control/KOPZMCROGHHM |
| • Asia Pacific (Singapore)  
arn:aws:controltower:ap-southeast-1:control/ROKMSCRMLKWF |
| • Europe (Frankfurt)  
arn:aws:controltower:eu-central-1:control/NYJHLLGLJNVL |
| • Europe (Ireland)  
arn:aws:controltower:eu-west-1:control/ILUNFEJNBVLU |
| • Europe (London)  
arn:aws:controltower:eu-west-1:control/ILUNFEJNBVLU |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/FHAGC BG0FCZO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower er:eu-nor th-1::control/KXOH MXGPWJQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower er:ap-south-1::control/YGQD RTWXYLOX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower er:ap-north-east-2::control/PPUMEARUOMAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower er:ap-northeast-1::control/PQSBZCJMYD</td>
</tr>
</tbody>
</table>

SH.EC2.7 4791
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AMMZARWOCRGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/KKPRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SACQYWB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/DQPCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GISFCNR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/MFFNO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SWTXLHJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.EC2.8           | • NIST 800-53 Rev 5 AC-3  
|                    | • NIST 800-53 Rev 5 AC-3(15)  
|                    | • NIST 800-53 Rev 5 AC-3(7)  
|                    | • NIST 800-53 Rev 5 AC-6  
|                    | • PCI DSS version 3.2.1 7.1.1  
|                    | • PCI DSS version 3.2.1 7.2.1  
|                    | • PCI DSS version 3.2.1 7.2.2  | • Protect configurations | • US East (N. Virginia)  
|                    |                       |                                | arn:aws:controltower:us-east-1::control/RZXGVSCOVETI |
|                    |                       |                                | • US East (Ohio)  
|                    |                       |                                | arn:aws:controltower:us-east-2::control/LUMAXIDLGKZV |
|                    |                       |                                | • US West (Oregon)  
|                    |                       |                                | arn:aws:controltower:us-west-2::control/IFGERUTZUTFR |
|                    |                       |                                | • Canada (Central)  
<p>|                    |                       |                                | arn:aws:controltower:ca-central-1::control/HXUBJTXHYPIP |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/JIQJXDPKNWCG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/PJIPLFCSHLGZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/EPCOXJUHAMZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/HBOYAMQJYZKC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/YQTWM NPRSUPZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/EVQZ CKSCDYBU</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/BICI OKSBGCME</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/WENMEHKVCFXE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/WENMEHKVCFXE</td>
<td></td>
</tr>
</tbody>
</table>

SH.EC2.8
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZTLTQYUGVMO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/LFDVAAXJLZNB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/IINOISFTCCHY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/DUWQHNJEKNS</td>
</tr>
</tbody>
</table>
## SH.EC2.9

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EC2.9           | NIST 800-53 Rev 5 AC-21 | Limit network access | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/MINKV0GJPJARR |
|                    | NIST 800-53 Rev 5 AC-3  |                     | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/RYXXKGSIIEIVR |
|                    | NIST 800-53 Rev 5 AC-3(7) |                     | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/KXUMGWDZGDKW |
|                    | NIST 800-53 Rev 5 AC-4  |                     | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/XPJJCAOJDFWB |
<p>|                    | NIST 800-53 Rev 5 AC-4(21) |                     |                     |
|                    | NIST 800-53 Rev 5 AC-6  |                     |                     |
|                    | NIST 800-53 Rev 5 SC-7  |                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(11) |                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(16) |                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(20) |                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(21) |                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(3) |                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(4) |                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(9) |                     |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • PCI DSS version 3.2.1 1.2.1 | Asia Pacific (Sydney)  
arn:aws:controltower:ap-southeast-2:control/MQLRBDKQRBRZ | | |
| • PCI DSS version 3.2.1 1.3 | Asia Pacific (Singapore)  
arn:aws:controltower:ap-southeast-1:control/WHRCLJSDRMGI | | |
| • PCI DSS version 3.2.1 1.3.1 | Europe (Frankfurt)  
arn:aws:controltower:eu-central-1:control/DWBLDYSTIZXJ | | |
| • PCI DSS version 3.2.1 1.3.2 | Europe (Ireland)  
arn:aws:controltower:eu-west-1:control/GAVOLJJJJLIJ | | |
| • PCI DSS version 3.2.1 1.3.4 | Europe (London)  
arn:aws:controltower:eu-west-1:control/GAVOLJJJJLIJ | | |
<p>| • PCI DSS version 3.2.1 1.3.6 |  | | |
| • PCI DSS version 3.2.1 2.2.2 |  | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/JQNYR JPWYEUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:control:eu-nor th-1:control/GDLD QWNBTZSC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:control:ap-south-1:control/DJYJ FJKFZGNB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:control:ap-northeast-2:control:EXUUFYGJTSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:control:ap-northeast-1:control/JQNYR JPWYEUN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>:control/VVFAVFGIYDED</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/YMHVIDAULAAXN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America</td>
<td>arn:aws:controltower:sa-east-1::control/WVIZDNIFQJVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N.</td>
<td>arn:aws:controltower:us-west-1::control/FZQCADBOVIHK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SH.ECR.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ECR.1</td>
<td>• NIST 800-53 Rev 5 RA-5&lt;br&gt;• PCI DSS version 3.2.1 11.2.3&lt;br&gt;• PCI DSS version 3.2.1 6.3.2</td>
<td>• Manage vulnerabilities</td>
<td>• <strong>US East (N. Virginia)</strong>&lt;br&gt;arn:aws:controltower:us-east-1::control/OZQOTZVQZXUY&lt;br&gt;• <strong>US East (Ohio)</strong>&lt;br&gt;arn:aws:controltower:us-east-2::control/JQCJORMCEEUT&lt;br&gt;• <strong>US West (Oregon)</strong>&lt;br&gt;arn:aws:controltower:us-west-2::control/LIWRSKLRMDEW&lt;br&gt;• <strong>Canada (Central)</strong>&lt;br&gt;arn:aws:controltower:ca-central-1::control/VJWDDYTKMDLE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/KTMZOOLGTWJX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/DISETFBTTTHBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/UK MVZZGIXJHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/UFGUBZPYBLPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control/GOSHHOOLDEUD</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south th-1:control/FKTC YLYWJYFL</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control-2:AQOJKZAMTAPS</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control-1:SH.ECR.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4803 SH.ECR.1</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QVUCVSZUBUVL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/QVUCVSZUBUVL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/FYIVBNSACUET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/JEZPGFQEPEQL</td>
</tr>
</tbody>
</table>
## SH.ECR.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ECR.2</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Protect configurations</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/ASKLT EEGJOIL</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/JWNRP DFKGDYD</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-8(1)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/ICDSC ZRMSAGC</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/SK IMJMSMPJYN</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/THACMOMUCYAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/TKDSBFRHCRHM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/WNRNZOLQUPYQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/MTSVJIZFHVJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/DOWLY NHVRUPZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower er:eu-north-1:control/FMXG UCTEFMHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower er:ap-south-1:control/LOYO RBYGCYNU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower er:ap-northeast-2:control/OCKPML0SKZGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower er:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

SH.ECR.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UEEBKULXVSOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/CFENKYNFLFUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/POXSI LHFUISA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/HKFGMXYZUIZU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.ECR.3           | • NIST 800-53 Rev 5 CA-9(1)  
|                    | • NIST 800-53 Rev 5 CM-2  
|                    | • NIST 800-53 Rev 5 CM-2(2)  
|                    | • PCI DSS version 3.2.1 3.1 | • Manage vulnerabilities  
|                    |                        | • Protect configurations  
|                    |                        | • US East (N. Virginia)  
|                    |                        |   arn:aws:controltower:us-east-1::control/UDDDYEJAYHXP  
|                    |                        | • US East (Ohio)  
|                    |                        |   arn:aws:controltower:us-east-2::control/PQBPPQRIRVDR  
|                    |                        | • US West (Oregon)  
|                    |                        |   arn:aws:controltower:us-west-2::control/HDESRSEEGACA  
|                    |                        | • Canada (Central)  
|                    |                        |   arn:aws:controltower:ca-central-1::control/UU KJMLKQDJSZ  

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/XOFCCMMRFEKZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/TXULSFUTMWAD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/EYLAVXIWUYJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/YZOORHCUOIIIX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/KQEE WFQPLSVD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/AMXI UAVTMARH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/IXMOORTCBTMD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:SH.ECR.34811</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/NQSPSFVPXCG0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/UDIEIADBPZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AIBSWGEPDIRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/PKBHCVZWGSUM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.ECS.1           | NIST 800-53 Rev 5 AC-2(1) | Manage vulnerabilities | US East (N. Virginia)  
ar:aws:controltower:us-east-1:control/OPQLRHBGSJJBUN |
|                    | NIST 800-53 Rev 5 AC-3   |                      | US East (Ohio)  
ar:aws:controltower:us-east-2:control/YQDCIBDUYPTD |
|                    | NIST 800-53 Rev 5 AC-3(15) |                      | US West (Oregon)  
ar:aws:controltower:us-west-2:control/PZJZHGWZUIMP |
|                    | NIST 800-53 Rev 5 AC-3(7) |                      | Canada (Central)  
ar:aws:controltower:ca-central-1:control/ZBKHFVFKVDFR |
<p>|                    | NIST 800-53 Rev 5 AC-5   |                      |                     |
|                    | NIST 800-53 Rev 5 AC-6   |                      |                     |
|                    | NIST 800-53 Rev 5 AU-6(3) |                      |                     |
|                    | NIST 800-53 Rev 5 AU-6(4) |                      |                     |
|                    | NIST 800-53 Rev 5 CA-7   |                      |                     |
|                    | NIST 800-53 Rev 5 SI-2   |                      |                     |
|                    | NIST 800-53 Rev 5 SI-2(2) |                      |                     |
|                    | NIST 800-53 Rev 5 SI-2(4) |                      |                     |
|                    | NIST 800-53 Rev 5 SI-2(5) |                      |                     |
|                    | PCI DSS version 3.2.1 10.1 |                      |                     |
|                    | NIST 800-53 Rev 5 SI-2(15) |                      |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/CPDDHHPDKPIP</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/DRQQFNIOIXFD</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/XDQJHTGYRMXH</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/JUUTNCMUDPKT</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-1:control/JUUTNCMUDPKT</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 6.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td>er:eu-wester-2:control/WVYXI BWPTVGT</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/VPIM QOEKYAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-2::control/DZKN SGRUQHTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control: CRTKLEJMVWKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PTKUNQWSQMBF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/KJDQIUMDDLYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/RKEJYYZHLSHX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/NVCVMSRIONRR</td>
</tr>
</tbody>
</table>
## SH.ECS.10

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.ECS.10          | • NIST 800-53 Rev 5 SI-2  
                      • NIST 800-53 Rev 5 SI-2(2)  
                      • NIST 800-53 Rev 5 SI-2(4)  
                      • NIST 800-53 Rev 5 SI-2(5)  
                      • PCI DSS version 3.2.1 6.2 | • Manage vulnerabilities | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/WWVYZKSEXPPK |
|                    |           |                   | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/ABBRGFOMERCX |
|                    |           |                   | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/LOZWHACNQRQQ |
|                    |           |                   | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/ULWMHFCYLPWR |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WILNHTOPFEWQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JLJTQCESWDOA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/XR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZGHYWSUNRE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/TAHWMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CHCPTII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/WTDCO BPXKVBY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/EBJT JOMBWLNXQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/SUDP RJEDUAWI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/MFBANBYEIBII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ALVOGJRVKKZK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/XUEPVHSYPADK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/NLUIVMHMGH0A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ANFBKAZJRLAL</td>
</tr>
</tbody>
</table>
## SH.ECS.12

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.ECS.12          | • NIST 800-53 Rev 5 AU-6(3)  
• NIST 800-53 Rev 5 AU-6(4)  
• NIST 800-53 Rev 5 CA-7  
• NIST 800-53 Rev 5 SI-2  
• PCI DSS version 3.2.1 10.1  
• PCI DSS version 3.2.1 10.2.1  
• PCI DSS version 3.2.1 10.2.2  
• PCI DSS version 3.2.1 10.2.3  
• PCI DSS version 3.2.1 10.2.4  
• PCI DSS version 3.2.1 10.2.5  
• PCI DSS version 3.2.1 10.2.7  
• PCI DSS version 3.2.1 10.3.1  
• PCI DSS version 3.2.1 10.3.2  
• PCI DSS version 3.2.1 10.3.3 | • Establish logging and monitoring | • US East (N. Virginia)  
ar:n:aws:controltower:us-east-1:control/LWIVFPXZ0SHV  
• US East (Ohio)  
ar:n:aws:controltower:us-east-2:control/FZXOIKGOONZN  
• US West (Oregon)  
• Canada (Central)  
ar:n:aws:controltower:ca-central-1:control/KXERYZUCGGJC |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/MGJPDOBPUTIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/EVNJGVRMBUIZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/THICLWSSHFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (Ireland) arn:aws:controltower:eu-west-1:control/NCQMUQIVVXCS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (London) arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/GIMEJ GBOEQRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/UOGM DFBVJPQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/XAFJ JVQHMGNX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/QILRKMIFRVDI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/QILRKMIFRVDI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EOYYFDCHIFPM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/PQEJONXBITPM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/EXXSLRJHTNEZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/PJKCMWEKLDRL</td>
</tr>
</tbody>
</table>

SH.ECS.12 4824
## SH.ECS.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ECS.2</td>
<td>• NIST 800-53 Rev 5 AC-21&lt;br&gt;• NIST 800-53 Rev 5 AC-3&lt;br&gt;• NIST 800-53 Rev 5 AC-3(7)&lt;br&gt;• NIST 800-53 Rev 5 AC-4&lt;br&gt;• NIST 800-53 Rev 5 AC-4(21)&lt;br&gt;• NIST 800-53 Rev 5 AC-6&lt;br&gt;• NIST 800-53 Rev 5 SC-7&lt;br&gt;• NIST 800-53 Rev 5 SC-7(11)&lt;br&gt;• NIST 800-53 Rev 5 SC-7(16)&lt;br&gt;• NIST 800-53 Rev 5 SC-7(20)&lt;br&gt;• NIST 800-53 Rev 5 SC-7(21)&lt;br&gt;• NIST 800-53 Rev 5 SC-7(3)&lt;br&gt;• NIST 800-53 Rev 5 SC-7(4)&lt;br&gt;• NIST 800-53 Rev 5 SC-7(9)</td>
<td>• Limit network access&lt;br&gt;• Enforce least privilege</td>
<td>• US East (N. Virginia)&lt;br&gt;arn:aws:controltower:us-east-1::control/JCFLS LPRFWPS&lt;br&gt;• US East (Ohio)&lt;br&gt;arn:aws:controltower:us-east-2::control/HGHFA HJTOSDD&lt;br&gt;• US West (Oregon)&lt;br&gt;arn:aws:controltower:us-west-2::control/ITRPZ WOLQECJ&lt;br&gt;• Canada (Central)&lt;br&gt;arn:aws:controltower:ca-central-1::control/BE DXPJRWTJDZQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/OAVLGBTROIFK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/ZPDCBKMLWII0</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/JVNFXHHIODF</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/HCEOCFPEDPJB</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes-t-2:control/GERJZAP MBPTJJC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> <code>arn:aws:controltower:eu-north-1::control/GEWF DODMQPJO</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> <code>arn:aws:controltower:ap-south-1::control/OCQS RQOSDJ0Y</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> <code>arn:aws:controltower:ap-northeast-2:control/ AZEUZHAHYCTW</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> <code>arn:aws:controltower:ap-northeast-1:control/ AZEUZHAHYCTW</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DRVAMWTXHOSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/ATLAWWQGPGKL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/LKTODXRXWLVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/QWKOXTIBTRAG</td>
</tr>
</tbody>
</table>
## SH.ECS.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ECS.3</td>
<td>• NIST 800-53 Rev 5 CA-9(1) • NIST 800-53 Rev 5 CM-2 • PCI DSS version 3.2.1 1.3.7</td>
<td>• Protect configurations • Enforce least privilege</td>
<td>• US East (N. Virginia)arn:aws:controltower:us-east-1::control/UFYTWRSCKNKN • US East (Ohio)arn:aws:controltower:us-east-2::control/DESMSSIJBLYWH • US West (Oregon)arn:aws:controltower:us-west-2::control/KYMDJLKLXJHG • Canada (Central)arn:aws:controltower:ca-central-1::control/SFBMOXOHPGJA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/XTGMIDMJOWXW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/CQYNUJHWPJMZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/SNWDOPIOUEOV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/XKOKXODCBPP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/WWVNV NIGVLQY</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-nor th-1::control/KNUA LLKQETTY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/ZMMJ VDDXRGGF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/VJYBXQPUUBX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/VJYBXQPUUBX</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The ARNs are placeholders and should be replaced with actual ARNs for the relevant regions.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>:control/YNJYRFYEDDHE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Europe (Paris)</strong></td>
<td>arn:aws:controltower:eu-west-3:control/PJOVTFEHEAKV</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>South America (São Paulo)</strong></td>
<td>arn:aws:controltower:sa-east-1:control/JXVVVCWLLIJN</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>US West (N. California)</strong></td>
<td>arn:aws:controltower:us-west-1:control/DPBKENFFLCHB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SH.ECS.4</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/ZTDLFKNABSTB</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/OCQLRQRWYOGE</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/MRRRZFTNEETG</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/IFCCVDCGNTTK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/LFUVYWFYYLLU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/WYHAZMRJHMRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/YZQPFCVZSNL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/BTEHFAMXVTLV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower/</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) <strong>arn:aws:controltower:eu-north-1::control/PGNR TTNFKGWF</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) <strong>arn:aws:controltower:ap-south-1::control/YEZC UVRWIYFA</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) <strong>arn:aws:controltower:ap-northeast-2::control/ZLQSIBGRUZQN</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) <strong>arn:aws:controltower:ap-northeast-1::control/HQTXD ZNCYCVT</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QTLPYWOKIUKL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/STYZIXTVYTTF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/HIEAVTMGOSDM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/GSDEWHVOWFBJ</td>
</tr>
</tbody>
</table>
## SH.ECS.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ECS.5</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td>• Protect configurations</td>
<td>arn:aws:controltower:us-east-1:control/KPIETXSDELVX</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>arn:aws:controltower:us-east-2:control/DZURSFLDZJCZ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-5</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/GTHMXNOZDNXN</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/XGGLVMQEYMTU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/XWHFZMHURMPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/GETZOYOUJIXQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/JRZBGRQCVXUK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/UIKDFBESIRCQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td>er:eu-wes:t-2:control/PAQMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>THTZYVV</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>arn:aws:controltower:eu-nor:th-1:control/ZUITZQOVJNUJ</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>arn:aws:controltower:ap-south:th-1:control/AFNCBEGBYIXM</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>arn:aws:controltower:ap-nor:theast-2:control/RXTACLFLMSCY</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>arn:aws:controltower:ap-nor:theast-1:control/RXTACLFLMSCY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/JHKKIIMQVTBF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JFIBZ VCAGGGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ONOOS EFNYAQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/CVZ0J YLQKGMS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------</td>
<td>-------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SH.ECS.8</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Use strong authentication</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/LJCQVFMBPQAV</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/NAWGNOLLBSBXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/VHVNQSXRDIET</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/OTHWMXXNMCSP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/HLGKEXFGGOBE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/WQZEZOJHIDDT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/RTATKXPWIRIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/EMXDVHJLRSJH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/BPVJC GDDGSQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/HGLD PNFOQMBH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/KANM MZEMJFTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/GNPKSZTRDA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/GNPKSZTRDA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FXUBXSUYWJPD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/MVNPMRMJPAIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/RNZTOFGURZUK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/UBMPZYX0EOSM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SH.EFS.1</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1:control/DAAYOZMUFPOA</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2:control/TUBTOQPYRF CZ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1:control/CSVENQNTZNYV</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/TTLYUNPAEQS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/FCPQPNIVMTLV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/EEWVZSOALXSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/YRPBNRJZQEHL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.EFS.1 4846
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/BNXMO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>COJDLXM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/QNVQ PFTVIXEA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south th-1:control/IUAG TQHHNXJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/YNHUHLGHQVNE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/YNHUHLGHQVNE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DOBFVUCUKROMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/TPNLRFVPUGON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/GJQNS/JLZRNTD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ZOQSL/EMJOPAG</td>
</tr>
</tbody>
</table>
## SH.EFS.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.EFS.2</td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Improve resiliency</td>
<td>• US East (N. Virginia)</td>
</tr>
</tbody>
</table>
|                    | • NIST 800-53 Rev 5 CP-6           |                   | arn:aws:controltower:us-east-1::control/AKKPA
|                    | • NIST 800-53 Rev 5 CP-6(1)        |                   | SMFZEGR                           |
|                    | • NIST 800-53 Rev 5 CP-6(2)        |                   | • US East (Ohio)                  |
|                    | • NIST 800-53 Rev 5 CP-9           |                   | arn:aws:controltower:us-east-2::control/PDXZZ
|                    | • NIST 800-53 Rev 5 SC-5(2)        |                   | WIPVJJY                           |
|                    | • NIST 800-53 Rev 5 SI-12          |                   | • US West (Oregon)                |
|                    | • NIST 800-53 Rev 5 SI-13(5)       |                   | arn:aws:controltower:us-west-2::control/PGSGU
|                    | • PCI DSS version 3.2.1 3.1        |                   | FIPZMDK                           |
|                    |                                    |                   | • Canada (Central)                |
|                    |                                    |                   | arn:aws:controltower:ca-central-1::control/GC
<p>|                    |                                    |                   | WIQEDCGVFE                        |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/OJAGQJKAXRQT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/LNAWKNUYDXZM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/QRUYZOHTBYFY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/FVGXQKRPKOYS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-1:control/FVGXQKRPKOYS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/CRQDN ORELCA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:c ontroltower er:eu-nor th-1:control/FGMJ DIKXXHPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:c ontroltower er:ap-south-1:control/RYDL PNLERROW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:c ontroltower er:ap-northeast-2:control/VTEXLEQNDADOK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:c ontroltower er:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

...
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/POMNJTHRC1LYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3:control/YVWVIWNYDVIW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1:control/PTOQRJVREEMJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1:control/YNYOCEJWWSRB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| SH.EFS.3           | • NIST 800-53 Rev 5 AC-6(10)  
                     • PCI DSS version 3.2.1 7.1.1  
                     • PCI DSS version 3.2.1 7.2.1  
                     • PCI DSS version 3.2.1 7.2.2 | • Enforce least privilege | • US East (N. Virginia)  
                         arn:aws:controltower:us-east-1::control/YLSKXEGSHZFO  
                         • US East (Ohio)  
                         arn:aws:controltower:us-east-2::control/DZQNOWWCFPJI  
                         • US West (Oregon)  
                         arn:aws:controltower:us-west-2::control/NVESMCWZHHTI  
                         • Canada (Central)  
                         arn:aws:controltower:ca-central-1::control/JJUVJECZICXY |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/OPPEWLVDKCXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/MLSTPREPKCET</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/ZVUGCKESDOAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/FRSIKFZQWOZSG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/FRSIKFZQWOZSG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/FWTBU WRJMMAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/RIRP TGIVTUUG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/QZXHMIOHKT KH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/FMAXTHSWUHAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/FMAXTHSWUHAN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BBXHQCBPAYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/EMNDT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RBBZAO0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/SYGAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LBUNRYO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/EPCJM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YEFWURL</td>
</tr>
</tbody>
</table>
### SH.EFS.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.EFS.4</td>
<td>• NIST 800-53 Rev 5 AC-6(2)</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/IINULENBTTWX</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/NLBIAOKRHRAW</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/SMRVH SXRVJWI</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/QSSJLANZTBWW</td>
</tr>
</tbody>
</table>
## Control identifier | Framework | Control objective | Control API identifiers, by Region
--- | --- | --- | ---

- **Asia Pacific (Sydney)**

- **Asia Pacific (Singapore)**
  - ARN: `arn:aws:controltower:ap-southeast-1:control/VBQLOLHZXKNI`

- **Europe (Frankfurt)**
  - ARN: `arn:aws:controltower:eu-central-1:control/DDGNCQCYAADS`

- **Europe (Ireland)**
  - ARN: `arn:aws:controltower:eu-west-1:control/DUAIA YKTTLBT`

- **Europe (London)**
  - ARN: `arn:aws:controltower:eu-west-1:control/DUAIA YKTTLBT`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/NLYPS JYEGSYH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/RUBE QKKWPQQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/HYFD EVIDTOE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-north</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control-2:control-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LHCKUUHCRPBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-north</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XKCOVRIEKWFZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3:control/SMEIEQREFMGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1:control/NUPVFXUNVWQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1:control/OXIESZJRCGZM</td>
</tr>
</tbody>
</table>
## SH.EKS.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.EKS.1           | • NIST 800-53 Rev 5 AC-21  
|                    | • NIST 800-53 Rev 5 AC-3  
|                    | • NIST 800-53 Rev 5 AC-3(7) 
|                    | • NIST 800-53 Rev 5 AC-4  
|                    | • NIST 800-53 Rev 5 AC-4(21) 
|                    | • NIST 800-53 Rev 5 AC-6  
|                    | • NIST 800-53 Rev 5 SC-7  
|                    | • NIST 800-53 Rev 5 SC-7(11) 
|                    | • NIST 800-53 Rev 5 SC-7(16) 
|                    | • NIST 800-53 Rev 5 SC-7(20) 
|                    | • NIST 800-53 Rev 5 SC-7(21) 
|                    | • NIST 800-53 Rev 5 SC-7(3)  
|                    | • NIST 800-53 Rev 5 SC-7(4)  
|                    | • NIST 800-53 Rev 5 SC-7(9)  
|                    | • Limit network access      | • US East (N. Virginia)          
|                    |                        |    arn:aws:controltower:us-east-1::control/QSXPJMUVGBWI |
|                    |                        | • US East (Ohio)              
|                    |                        |    arn:aws:controltower:us-east-2::control/JBGJBQFRJEFT |
|                    |                        | • US West (Oregon)             
|                    |                        |    arn:aws:controltower:us-west-2::control/UCMPEYSGHUVA |
|                    |                        | • Canada (Central)             
<p>|                    |                        |    arn:aws:controltower:ca-central-1::control/TLPEVLKHXZPJ |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>- PCI DSS version 3.2.1 1.2.1</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/SLOTDKVQKNMQ</td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 1.3</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/HORWJXPWMEYX</td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 1.3.1</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/OCMAXHKFGZKW</td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 1.3.2</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/WPMCDIDHHGGQ</td>
<td></td>
</tr>
<tr>
<td>- PCI DSS version 3.2.1 1.3.4</td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/WPMCDIDHHGGQ</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/COPIX EUXPEHP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:control/tower:eu-north-1::control/PLKW FCUWEDYB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:control/tower:ap-south-1::control/HGFR LOAZSNPF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:control/tower:ap-northeast-2:control/HFEPQKKCGYU0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:control/tower:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

**AWS Control Tower User Guide**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-west-3::control/XUXST EHHKX0Y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-east-1::control/ATXMH NVLDBRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-west-1::control/ECMEO TMZWCNO</td>
</tr>
</tbody>
</table>
## SH.EKS.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.EKS.2</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Manage vulnerabilities</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/RDAUUJAGICFK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2(2)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/ZFJKLNNVBGRM</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2(4)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2(5)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/KTILUSDFMIXF</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 6.2</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/NXDAILOKJURD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/DAMQGUZZUZBH</td>
</tr>
<tr>
<td>Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ZGYTSFAJVJCI</td>
</tr>
<tr>
<td>Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/QXPCMOZGPBRZ</td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/YSQYVFCPJXKE</td>
</tr>
<tr>
<td>Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/YNJIVYZLMAWXZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltow er:eu-nor th-1:control/NNTRKKQFKPQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltow er:ap-south-1:control/OLRVVJBCRSQN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltow er:ap-northeast-2:control/KNMBERLUNBLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltow er:ap-northeast-1:control/SH.EKS.24867</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/YTILPIJEMRTA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/EKDIUQEYSTOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/HQAHDQEAVOUR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/GYVEZGBOVENZ</td>
</tr>
</tbody>
</table>
# SH.ELB.10

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.ELB.10          | • NIST 800-53 Rev 5 CP-10  
                     |           | • Improve availability | • US East (N. Virginia)  
                     |           |                  |  arn:aws:controltower:us-east-1::control/FVCVSQHZTIZT |
|                    | • NIST 800-53 Rev 5 CP-6(2) |                  | • US East (Ohio)  
                     |           |                  |  arn:aws:controltower:us-east-2::control/GPJSWKIEBWUR |
|                    | • NIST 800-53 Rev 5 SC-36 |                  | • US West (Oregon)  
                     |           |                  |  arn:aws:controltower:us-west-2::control/USWBDHCGVRDW |
|                    | • NIST 800-53 Rev 5 SC-5(2) |                  | • Canada (Central)  
<pre><code>                 |           |                  |  arn:aws:controltower:ca-central-1::control/RVBQKRTSIQHB |
</code></pre>
<p>|                    | • NIST 800-53 Rev 5 SI-13(5) |                  |                                  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ZDVYGBSRJWYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/FJZFXVJRPRAZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/NURMKCLEHUPH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/KXDJVFVEKKB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/FAOBZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SYTPLPV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/XTYT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RYANVABU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/SNUV EKZNARWV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control2:KXJZKDGJXTYM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QCGD TTLRIYYPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west:3:control/XBJIKR KMXAOD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east:1:control/WDXWF RSIXIUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west:1:control/WSUSFKNXHPIX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------</td>
<td>---------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SH.ELB.12</td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td>• Protect data integrity</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/ZLQPMXHBILJA</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/VGZVYNURBZDT</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/LVFJKSJQZIZH</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 6.6</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/TUKTIBCDJAVB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/UXUMUBGBZH2O</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/HAAQAZMDWOYQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/VPGRYBGHOV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/VPPWCERAPGTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

**Control identifier**: Identifiers for controlling access to specific AWS services and resources.

**Framework**: The framework used to control access and resources.

**Control objective**: The objective of controlling access and resources.

**Control API identifiers, by Region**: Unique identifiers for each region to control access and resources.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/QVTSO BDYQEAJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/JYQS YKANCTJW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/LKVZ ZNIHLSAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/QXHRCRDLPKYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/QXHRCRDLPKYU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/PUUVSMOQZIPJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/JBHKDYCKJGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/HQGAZVJBHZXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/LRHZZLHRJNUX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------</td>
<td>------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>SH.ELB.13</td>
<td>• NIST 800-53 Rev 5 CP-10&lt;br&gt;• NIST 800-53 Rev 5 CP-6(2)&lt;br&gt;• NIST 800-53 Rev 5 SC-36&lt;br&gt;• NIST 800-53 Rev 5 SC-5(2)&lt;br&gt;• NIST 800-53 Rev 5 SI-13(5)</td>
<td>• Improve availability</td>
<td>• US East (N. Virginia)&lt;br&gt;  arn:aws:controltower:us-east-1::control/KXYVYWSAVBJH&lt;br&gt;• US East (Ohio)&lt;br&gt;  arn:aws:controltower:us-east-2::control/UECMTXGSEOCG&lt;br&gt;• US West (Oregon)&lt;br&gt;  arn:aws:controltower:us-west-2::control/ISTVPVBYSJIR&lt;br&gt;• Canada (Central)&lt;br&gt;  arn:aws:controltower:ca-central-1::control/FXCYGAGEGPGU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/ZUSLMMQOYOHO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/TEGUOPRVXVVR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/IH SKURWXDUTW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/XLTLB TOQHXLF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:con rol/QSDQG JCOPYSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:con trolltow er:eu-nor th-1:con troll/SRJY XMTWSTJE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:con trollingtow er:ap-south-1:con troll/WMXU ZBXGJQWF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:con trollingtow er:ap-northeast-2:con troll/RAMKNMUEEEEXG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:con trollingtow er:ap-northeast-1:con troll/RAMKNMUEEEEXG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/WARGNXCJHUUVW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/PIVSOAXMRWDV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/PKDNMVJGPHFK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/BXDUORERQDGQ</td>
</tr>
</tbody>
</table>
## SH.ELB.14

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ELB.14</td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 6.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Protect data integrity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **US East (N. Virginia)**
  - arn:aws:controltower:us-east-1:control/YFWVKLAFIBUY
- **US East (Ohio)**
  - arn:aws:controltower:us-east-2:control/WCWDSWOQLVAX
- **US West (Oregon)**
  - arn:aws:controltower:us-west-2:control/DQHJULQCNNCE
- **Canada (Central)**
  - arn:aws:controltower:ca-central-1:control/HA B0KKLKHBXF
<table>
<thead>
<tr>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/NTKIROXXRLDD</td>
<td></td>
</tr>
<tr>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/WUXJUUZQOMXC</td>
<td></td>
</tr>
<tr>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/EWPYQNJOIWE</td>
<td></td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/HUBSU IYPXEUM</td>
<td></td>
</tr>
<tr>
<td>Europe (London)</td>
<td>arn:aws:controltower</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
</tbody>
</table>
| SH.ELB.2           | • NIST 800-53 Rev 5 AC-17(2) | Encrypt data in transit | • US East (N. Virginia)  
ar:aws:controltower:us-east-1::control/CDLXUWUBOOTY |
|                    | • NIST 800-53 Rev 5 AC-4       |                      | • US East (Ohio)  
ar:aws:controltower:us-east-2::control/GIDGLCTSHTW |
|                    | • NIST 800-53 Rev 5 IA-5(1)    |                      | • US West (Oregon)  
ar:aws:controltower:us-west-2::control/SBRXFCDRVYFI |
|                    | • NIST 800-53 Rev 5 SC-12(3)   |                      | • Canada (Central)  
ar:aws:controltower:ca-central-1::control/GWNPDCMTNYXF |
<p>|                    | • NIST 800-53 Rev 5 SC-13      |                     |                                   |
|                    | • NIST 800-53 Rev 5 SC-23      |                     |                                   |
|                    | • NIST 800-53 Rev 5 SC-23(5)   |                     |                                   |
|                    | • NIST 800-53 Rev 5 SC-7(4)    |                     |                                   |
|                    | • NIST 800-53 Rev 5 SC-8       |                     |                                   |
|                    | • NIST 800-53 Rev 5 SC-8(1)    |                     |                                   |
|                    | • NIST 800-53 Rev 5 SC-8(2)    |                     |                                   |
|                    | • NIST 800-53 Rev 5 SI-7(6)    |                     |                                   |
|                    | • PCI DSS version 3.2.1 2.3    |                     |                                   |
|                    | • PCI DSS version 3.2.1 4.1    |                     |                                   |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • PCI DSS version 3.2.1 8.2.1 | | | • Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/HQUTVBZCPUEL  
| | | | • Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/FNNZMAARRNKG  
| | | | • Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/UOVULDQLQTHL  
| | | | • Europe (Ireland) arn:aws:controltower:eu-west-1:control/TZOKKXANFHQY  
| | | | • Europe (London) arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/FVPMN SNNEBNB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/ZDDE NALCTJRR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/QIAV FQEMYPRM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/UTLWJZKGQSNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
</tbody>
</table>

---

**SH.ELB.2**

---

4887
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CERDAWILYRQ0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/YDXJFEAKHTBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/PLAZVVPNXQRL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/FMIVIICGFRXB</td>
</tr>
</tbody>
</table>
## SH.ELB.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ELB.3</td>
<td>• NIST 800-53 Rev 5 AC-17(2)</td>
<td>• Encrypt data in transit</td>
<td>• US East (N. Virginia) &lt;br&gt;arn:aws:controltower:us-east-1::control/FWOYTVWHEYQ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>• US East (Ohio) &lt;br&gt;arn:aws:controltower:us-east-2::control/YWXMTFLLBGJP</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 IA-5(1)</td>
<td></td>
<td>• US West (Oregon) &lt;br&gt;arn:aws:controltower:us-west-2::control/DFCYTONBHIGM</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td>• Canada (Central) &lt;br&gt;arn:aws:controltower:ca-central-1::control/GVQ0DFJYLZWC</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/WLNVBASSPYBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/BG0EIOEXPOID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/BK TUULNOSCWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/MBTYIFQQQMUF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1:control/MBTYIFQQQMUF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/PMRUI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CASDLHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor-1::control:YESX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DSARDRYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control:KTZT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XRNIMGCY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control:RHKBQSPWEASW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QRFDGQXERCXB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/rol/WBBZP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UNUJIZW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/rol/HDCQT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GGAITHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/rol/ZGOIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NURPERH</td>
</tr>
</tbody>
</table>
## SH.ELB.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ELB.4</td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td>• Protect configurations</td>
<td>• <strong>US East (N. Virginia)</strong></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/HBTZGRURMOKM</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **US East (Ohio)**
  arn:aws:controltower:us-east-2::control/ROBASCYMSHHJ

- **US West (Oregon)**
  arn:aws:controltower:us-west-2::control/OELFGUMNKNU

- **Canada (Central)**
  arn:aws:controltower:ca-central-1::control/EPRDRSPZQGPS
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

- **Asia Pacific (Sydney)**
  arn:aws:controltower:ap-southeast-2::control/FIPLHETXVCED

- **Asia Pacific (Singapore)**
  arn:aws:controltower:ap-southeast-1::control/TGUHGXFNQXKW

- **Europe (Frankfurt)**
  arn:aws:controltower:eu-central-1::control/TB BRKUWLCCBO

- **Europe (Ireland)**
  arn:aws:controltower:eu-west-1::control/IMZPH JIOZRLA

- **Europe (London)**
  arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/PWVTD MKGKMJD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltowers:eu-north-1::control/MWRJRKRTUHHJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltowers:ap-south-1::control/YCLA VFMLZXC0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltowers:ap-northeast-2::control/TEPRPAIKHSCW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltowers:ap-northeast-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MLYXGOVHGTHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/UQLQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FUBNHBW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/CFXHP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KIJIHO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/XINTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RUSSMYM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| SH.ELB.5            |           | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/RRDKK WVTNZOH  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/VURKN NKDB0FS  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/VVOAD NJLLYGS  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/FB ADZSAQTFEX |

- NIST 800-53 Rev 5 AC-4(26)
- NIST 800-53 Rev 5 AU-10
- NIST 800-53 Rev 5 AU-12
- NIST 800-53 Rev 5 AU-2
- NIST 800-53 Rev 5 AU-3
- NIST 800-53 Rev 5 AU-6(3)
- NIST 800-53 Rev 5 AU-6(4)
- NIST 800-53 Rev 5 CA-7
- NIST 800-53 Rev 5 SC-7(9)
- NIST 800-53 Rev 5 SI-7(8)
- PCI DSS version 3.2.1 10.1
- PCI DSS version 3.2.1 10.3.1
- PCI DSS version 3.2.1 10.3.2
- PCI DSS version 3.2.1 10.3.3
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • PCI DSS version 3.2.1 10.3.4<br>• PCI DSS version 3.2.1 10.3.5<br>• PCI DSS version 3.2.1 10.3.6 | | | • Asia Pacific (Sydney)<br>arn:aws:controltower:ap-southeast-2::control/HPXOCKUZZONE<br>• Asia Pacific (Singapore)<br>arn:aws:controltower:ap-southeast-1::control/NKENZBRJJPOZ<br>• Europe (Frankfurt)<br>arn:aws:controltower:eu-central-1::control/CQGLVPHETURU<br>• Europe (Ireland)<br>arn:aws:controltower:eu-west-1::control/ZSCPMMFXXTQY<br>• Europe (London)<br>arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-west-2:control/XTOUKDNICGIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/ZSBQEDXDMBGN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/FOTLYKSQLKL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/IVVPLPKPUUWQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/OXVTPFBQEEAQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/NJNQRVLHTOEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/EYYHLNPZCJJV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/BCKEONHSCFNJ</td>
</tr>
</tbody>
</table>
## SH.ELB.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.ELB.6           | - NIST 800-53 Rev 5 CA-9(1)  
                   - NIST 800-53 Rev 5 CM-2  
                   - NIST 800-53 Rev 5 CM-2(2)  
                   - NIST 800-53 Rev 5 CM-3  
                   - NIST 800-53 Rev 5 SC-5(2)  
                   - PCI DSS version 3.2.1 2.2 | - Improve availability | - **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/SYVZPNNPLEGU  
- **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/GXDETIMMTQLK  
- **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/HVEKNEMKLWBH  
- **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/UBKSMZHRBUQV |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) &lt;br&gt;arn:aws:controltower:ap-southeast-2:control/ PJAZYXFFMUW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) &lt;br&gt;arn:aws:controltower:ap-southeast-1:control/ BDRMHLFBGUEP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) &lt;br&gt;arn:aws:controltower:eu-central-1:control/WR SISOEDDWS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) &lt;br&gt;arn:aws:controltower:eu-west-1:control/DELHO MCMSGRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) &lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SH.ELB.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4902</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/NovGHQ EHEVMAJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/POKCJDINNSVR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/QECHNAARNON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/ZONLNMDDOGJO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZKRUXHVKSIG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/LGIRHZSFPFYQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/ONGHDHNAAHAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/EWWSVZDTHVM</td>
</tr>
</tbody>
</table>
## SH.ELB.7

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ELB.7</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Improve resiliency</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/WHVUNZVVTRSQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/NYOZBRSAFFEV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/HXVRPCPCCRZY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/RRQTKFRGJHIU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/LPNJZVNGKYJN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/FIASTWNTNWVC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/SPMNHSXITG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/THSXODYFVSSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/THSXODYFVSSS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er: eu-wes t-2: control/VEJYG WLULHGK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower: eu-nor th-1: control/SHYP AFLBHAM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower: ap-south-1: control/IKKH FUAQZUVN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower: ap-northeast-2: control-2: NKYEWHLZPPQC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower: ap-northeast-1: control</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZRQGKZBOWPZN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/rol/NMSVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JUWETDU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/rol/FMFSHPKQEUCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/rol/VNDDHFWXWULL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SH.ELB.8</td>
<td>• NIST 800-53 Rev 5 AC-17(2)</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/BRGQLJMFKKU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 IA-5(1)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-12(3)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/LJJKJRDIYJNY</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/FEXUWRZRBMRDJ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/GF VYJMUPSGXT</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:c controltower:ap-southeast-2:control/LBDQCQLATJBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:c controltower:ap-southeast-1:control/WHZUTCZDEVMX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:c controltower:eu-central-1:control/YQLUFOJXUK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:c controltower:eu-west-1:control/GADVJULJUSKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:c controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/DSKPM WLYPDGM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/IJXH XDULMKRD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south th-1:control/BBKA RSAMZQXX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control LSDFYBAGXZRB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control SH.ELB.84911</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DPJVNBBVQGHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/YYPWRLINUDDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-1::control/VYFJFUWVHFUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-1::control/YYVCUSYMJD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------</td>
<td>------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| SH.ELB.9           | • NIST 800-53 Rev 5 CP-10  
• NIST 800-53 Rev 5 CP-6(2)  
• NIST 800-53 Rev 5 SC-36  
• NIST 800-53 Rev 5 SC-5(2)  
• NIST 800-53 Rev 5 SI-13(5) | • Improve availability               | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/LYMRJYHLDSO  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/JHHGKBILPUKI  
• **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/DFCKOHVLNFDB  
• **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/QNQIVT0BLT |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/PYRVSCBYFIYM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/UPDNDZTPZAIN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/WPBIGRZPVNS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/VBDNCNXOKSD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/GZBBC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HZOGDLP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:ctn</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>olcontrol:eu-north-1::control/SDBX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IGMFJFDR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:ctn</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>olcontrol:ap-south-1::control/SVEC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MBMGSKGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:ctn</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>olcontrol:ap-northeast-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2:control/IFCBLNRPANH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:ctn</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>olcontrol:ap-northeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SH.ELB.94915</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/SRRIDXSTJWSL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/rol/RJLYX AXGELHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/rol/HXSCY TCTJUUH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/rol/BYOUCL ZLQEVRL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
</tbody>
</table>
| SH.ELBv2.1         | • NIST 800-53 Rev 5 AC-17(2)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 IA-5(1)  
• NIST 800-53 Rev 5 SC-12(3)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-23  
• NIST 800-53 Rev 5 SC-23(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-8  
• NIST 800-53 Rev 5 SC-8(1)  
• NIST 800-53 Rev 5 SC-8(2)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 2.3  
• PCI DSS version 3.2.1 4.1 | • Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/PPNNYFOYSBQX  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/LNITYBGXKRUZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/VBIBPIJKJEMY  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/YGASWQGDRBGT |

SH.ELBv2.1 4917
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| • PCI DSS version 3.2.1 8.2.1 | Asia Pacific (Sydney)  
arn:aws:controltower:ap-southeast-2:control/FJVEBRUCXPRO  
Asia Pacific (Singapore)  
arn:aws:controltower:ap-southeast-1:control/AJRCPZGMLTZJ  
Europe (Frankfurt)  
arn:aws:controltower:eu-central-1:control/SIPOMQYYFWG0  
Europe (Ireland)  
arn:aws:controltower:eu-west-1:control/PKGSEAYOWAOJ  
Europe (London)  
arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/ZUMOPQRPIGR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/KCWNEMFFUYLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/BATA GMQWYONM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/KCWNEMFFUYLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/KCWNEMFFUYLN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/JNZLKQTNNUFG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controller:eu-west-3::controller/GWLFGQOFTRSI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controller:sa-east-1::controller/BSHPLTXRABUV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controller:us-west-1::controller/JDTAUXJTEYF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------</td>
<td>-----------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SH.EMR.1</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/IFSMMPPVKOTA</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/JETOPUCSYFAI</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/JGCWFSRMUIIO</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/EPAGOHDKWZGV</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/GJCORWHFPGQY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/LCGUHRDQWNGL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/GO NVSLDLU00N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/RBAJH FBNQNJQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower:eu-west-1::control/RBAJH FBNQNJQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/IGGIY ASTPRJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/IBLZ UDBNMLLT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/NOTX PWZXUBGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/FUWGQXDEJHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/FUWGQXDEJHV</td>
</tr>
</tbody>
</table>

```
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/SBGVRVKPCNKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/SEFFPSXRZCDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/IMKKFPVGPRHC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/FKPHOKJPJXQV</td>
</tr>
</tbody>
</table>
## SH.ES.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ES.1</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/NKJEY RKBJVFV</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/UCHAA DGIVPUY</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/MDTDT ZWSIGIP</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/P0 ZXDXUYCPRU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/SFPSFDZNCYNL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/BIMQVMMQISKP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/PFHFMPYLFGRU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/ FMHZDFQFRJT A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/GQVXDQIVYOY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-northeast-1::control/PTTSHGGLKLPY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-2::control/LASVWDCILYGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/LASVWDCILYGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/LASVWDCILYGQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UMFDEWAMMCFN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/KZBVI PYLQACH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/QHWIQ GMZHZJS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/ICJDP HKYDJMB</td>
</tr>
</tbody>
</table>
## SH.ES.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.ES.2            | • NIST 800-53 Rev 5 AC-21  
                   | • NIST 800-53 Rev 5 AC-3  
                   | • NIST 800-53 Rev 5 AC-3(7)  
                   | • NIST 800-53 Rev 5 AC-4  
                   | • NIST 800-53 Rev 5 AC-4(21)  
                   | • NIST 800-53 Rev 5 AC-6  
                   | • NIST 800-53 Rev 5 SC-7  
                   | • NIST 800-53 Rev 5 SC-7(11)  
                   | • NIST 800-53 Rev 5 SC-7(16)  
                   | • NIST 800-53 Rev 5 SC-7(20)  
                   | • NIST 800-53 Rev 5 SC-7(21)  
                   | • NIST 800-53 Rev 5 SC-7(3)  
                   | • NIST 800-53 Rev 5 SC-7(4)  
                   | • NIST 800-53 Rev 5 SC-7(9)  | • Limit network access |
                   | US East (N. Virginia)  
                   | arn:aws:controltower:us-east-1::control/QCHIJWT7F4YOYF  
                   | US East (Ohio)  
                   | arn:aws:controltower:us-east-2::control/ZOTKTSFENTUVJ  
                   | US West (Oregon)  
                   | arn:aws:controltower:us-west-2::control/HDSBLJREMYRX  
                   | Canada (Central)  
<pre><code>               | arn:aws:controltower:ca-central-1::control/SZZLDHEGHCRES |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/BAQAAMCLMWUE</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/FUGYRQOZUEJV</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/BOLPWWJIEXNK</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/EIAQGIKVMUXC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/EIAQGIKVMUXC</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/JAQAM UDGAIVW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/LRNN CPQEFSSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/NOKX LSVSZDSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control-2:TPVVQKJ0DFVL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control-1:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ WKAJHHZHBVBN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/OGKTB RBTRFL0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/LMUSV XITTLFY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/NFJRP JAPDRMR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.E.S.3 | • NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-23  
• NIST 800-53 Rev 5 SC-23(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-8  
• NIST 800-53 Rev 5 SC-8(1)  
• NIST 800-53 Rev 5 SC-8(2)  
• PCI DSS version 3.2.1 4.1 | • Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/QYNCJNDFTBXE  
• US East (Ohio)  
arnc:aws:controltower:us-east-2::control/ULPXA RUKLUVO  
• US West (Oregon)  
arnc:aws:controltower:us-west-2::control/FMBZH HQPTZTW  
• Canada (Central)  
arnc:aws:controltower:ca-central-1::control/XL MZTTAZIZFJ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/LDLVUC0JCZXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/PPY0PHNGFCAW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/QQBVGZTCKGJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/YMPGRSPCJBBBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/DLCHOACBHILF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/IOPRWMTVBSLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/OZYVQTZLOGQO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/WJVNWGGFDDKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/sh.es.34935</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/NJNJRYBPIRKY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wst-3::control/BEMDKYRVFDOA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-1::control/RPIHYXAKUGCV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wst-1::control/SMXCBZSJLEHZ</td>
</tr>
</tbody>
</table>
### SH.ES.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ES.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
|                    | • NIST 800-53 Rev 5 AC-2(4) | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/STVVHFHXKVM |
|                    | • NIST 800-53 Rev 5 AC-4(26) | | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/BWPWZTDEDRN |
|                    | • NIST 800-53 Rev 5 AC-6(9) | | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/SJLJVDZSATIT |
|                    | • NIST 800-53 Rev 5 AU-10 | | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/RRWEWMKFN |
<p>|                    | • NIST 800-53 Rev 5 AU-12 | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/NTWHSOQIKOPQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/GFKAIZZPIILLQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/LTWGEJUMYGH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/RMAQOLLXGSLKK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/RVIBRAMTLWXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/WZYPFCRTWXIX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/TIPBMSRPMONC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/SYUVAMHWZNFM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/SH.ES.44939</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HNFCSNRMZERX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-west:control/NCUUHDFHMXWJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east:control/HHDZXRJRTOKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west:control/PWMKWZWORUTC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| SH.ES.5           | - NIST 800-53 Rev 5 AC-2(4)  
|                   | - NIST 800-53 Rev 5 AC-4(26)  
|                   | - NIST 800-53 Rev 5 AC-6(9)  
|                   | - NIST 800-53 Rev 5 AU-10  
|                   | - NIST 800-53 Rev 5 AU-12  
|                   | - NIST 800-53 Rev 5 AU-2  
|                   | - NIST 800-53 Rev 5 AU-3  
|                   | - NIST 800-53 Rev 5 AU-6(3)  
|                   | - NIST 800-53 Rev 5 AU-6(4)  
|                   | - NIST 800-53 Rev 5 CA-7  
|                   | - NIST 800-53 Rev 5 SC-7(9)  
|                   | - NIST 800-53 Rev 5 SI-3(8)  
|                   | - NIST 800-53 Rev 5 SI-4(20)  
|                   | - NIST 800-53 Rev 5 SI-7(8)  | - Establish logging and monitoring |
|                   |                                      | - **US East (N. Virginia)**  
|                   |                                      |   arn:aws:controltower:us-east-1::control/MMCPM MUFJIYU  
|                   |                                      | - **US East (Ohio)**  
|                   |                                      |   arn:aws:controltower:us-east-2::control/XMJYM FUZYCDL  
|                   |                                      | - **US West (Oregon)**  
|                   |                                      |   arn:aws:controltower:us-west-2::control/CJEQH RVXTIWI  
|                   |                                      | - **Canada (Central)**  
|                   |                                      |   arn:aws:controltower:ca-central-1::control/EFZWKCJABK  

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/59HBJICLMPQAQO</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/59AKWSXUIZDGPZ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/59TKGHQCHVTJ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/59ZAAOBYBSNALV</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1::control/59SH.ES.54942</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Europe (Stockholm)**  
  `arn:aws:controltower:eu-north-1::control/YBMKOVTHFRNH`  
  `arn:aws:controltower:eu-west-2::control/WJGQNETAVNGC`

- **Asia Pacific (Mumbai)**  
  `arn:aws:controltower:ap-south-1::control/YVMKOVTHFRNH`

- **Asia Pacific (Seoul)**  
  `arn:aws:controltower:ap-northeast-2::control/ECKECTWTCCES`

- **Asia Pacific (Tokyo)**  
  `arn:aws:controltower:ap-northeast-1::control/ECKECTWTCCES`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ELQAASFTEEWWI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/XUDIT0XTGLVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/EFCMMUJLPXPU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/EFAWSYQWHIVU</td>
</tr>
</tbody>
</table>
## SH.ES.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.ES.6             | • NIST 800-53 Rev 5 CP-10  
• NIST 800-53 Rev 5 CP-6(2)  
• NIST 800-53 Rev 5 SC-36  
• NIST 800-53 Rev 5 SC-5(2)  
• NIST 800-53 Rev 5 SI-13(5) | • Improve availability | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/RVPSMUYBMOHQ  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/URIOOADAQOPW  
• **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/VWKJFNZAPCDY  
• **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/FAJDNSWEYJTJ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/LSVJLTKRGRNL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/GSKYICEFCYUL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/THCGKVUOLBGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/IJBRHMLEUQOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/RVWKS ECGWWEP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/GZYP QIASBBIJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/GLOM YATYELRZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/KSBFKZWAUVIG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/WDKCZTLLFYSN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3::control/IIUFDVUSUNLT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1::control/CLXEBIXECLBK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1::control/LLKXRNITKZJX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.ES.7            | • NIST 800-53 Rev 5 CP-10  
                    | • NIST 800-53 Rev 5 CP-6(2)  
                    | • NIST 800-53 Rev 5 SC-36  
                    | • NIST 800-53 Rev 5 SC-5(2)  
                    | • NIST 800-53 Rev 5 SI-13(5)  | • Improve availability  
                    | | | | | | • US East (N. Virginia)  
                    | | | | | | arn:aws:controltower:us-east-1::control/BHBTV0FTLCSB  
                    | | | | | | • US East (Ohio)  
                    | | | | | | arn:aws:controltower:us-east-2::control/KAFELHVBFCBK  
                    | | | | | | • US West (Oregon)  
                    | | | | | | arn:aws:controltower:us-west-2::control/KDDVJHAFANAS  
                    | | | | | | • Canada (Central)  
                    | | | | | | arn:aws:controltower:ca-central-1::control/RTHTIINVLDRCB
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific</strong> (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[arn:aws:controltower:ap-southeast-2:control/YKZLIAMKUETJ]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific</strong> (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[arn:aws:controltower:ap-southeast-1:control/QORXBYKOQWGO]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[arn:aws:controltower:eu-central-1:control/GZWHLSAGPLNZ]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[arn:aws:controltower:eu-west-1:control/LETWZ OWEVBTI]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[arn:aws:controltower]</td>
</tr>
</tbody>
</table>

**Control identifier**: Unique identifier for each control.

**Framework**: The AWS Control Tower framework performs all the controls for the listed regions.

**Control objective**: The objective of the control is to ensure compliance with specific AWS best practices.

**Control API identifiers, by Region**: The ARN (Amazon Resource Name) for each region that implements the control.
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/JAJCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>THPCQKI</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-nor-1::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JHNM/RAPWCSXQ</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PTXY/SYHARCV</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ABAXYOWHDPKC</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Europe (Stockholm)
- Asia Pacific (Mumbai)
- Asia Pacific (Seoul)
- Asia Pacific (Tokyo)
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>:control/ WPXNVLDJXXDP</td>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-wes:t-3:control/EVUMEQKJCCQO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-eas:t-1:control/IHTMPZLJCAOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-wes:t-1:control/QHEQA AHVHJSP</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.ES.8            | • NIST 800-53 Rev 5 AC-17(2) | • Encrypt data in transit | • US East (N. Virginia)  
                           arn:aws:controltower:us-east-1::control/FZIUYKFDZJIO  
                           • US East (Ohio)  
                                arn:aws:controltower:us-east-2::control/AUHGLFUEHAPR  
                           • US West (Oregon)  
                                arn:aws:controltower:us-west-2::control/QVHFDLZIKRZW  
                           • Canada (Central)  
                                arn:aws:controltower:ca-central-1::control/EJOTPAVNDJFH  
|                    | • NIST 800-53 Rev 5 AC-4 |                      |  
|                    | • NIST 800-53 Rev 5 IA-5(1) |                      |  
|                    | • NIST 800-53 Rev 5 SC-12(3) |                      |  
|                    | • NIST 800-53 Rev 5 SC-13 |                      |  
|                    | • NIST 800-53 Rev 5 SC-23 |                      |  
|                    | • NIST 800-53 Rev 5 SC-23(3) |                      |  
|                    | • NIST 800-53 Rev 5 SC-7(4) |                      |  
|                    | • NIST 800-53 Rev 5 SC-8 |                      |  
|                    | • NIST 800-53 Rev 5 SC-8(1) |                      |  
|                    | • NIST 800-53 Rev 5 SC-8(2) |                      |  
|                    | • NIST 800-53 Rev 5 SI-7(6) |                      |  
|                    | • PCI DSS version 3.2.1 2.3 |                      |  
|                    | • PCI DSS version 3.2.1 4.1 |                      |  

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/CHITVXZCWFAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/VWVXXJAVDVY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/QGRNKSRBMF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/KLGGCWMMZGVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/ISVOJ HDBVFJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-th-1::control/SIBU GFYSXGEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/QVPG WCRCBGPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/ZWUGROTVPXC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/SH.ES.84555</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ RMOCTANNUNFN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/AWDID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NMOVPQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/UCYKC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MEFOPSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/WIHBL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MWBUKEA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------</td>
<td>----------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>SH.ElastiCache.3</td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Prepare for disaster recovery</td>
<td>• <strong>US East (N. Virginia)</strong>\narn:aws:controltower:us-east-1::control/URINWMLAKAI0</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td>• <strong>US East (Ohio)</strong>\narn:aws:controltower:us-east-2::control/QXRLPYENZJCP</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td>• <strong>US West (Oregon)</strong>\narn:aws:controltower:us-west-2::control/HKFIZPQYALLF</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td>• <strong>Canada (Central)</strong>\narn:aws:controltower:ca-central-1::control/ADKRAUIFQN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/IRLLBPCLBFSF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/AWAGCJQXXEBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/QXSNUTUUGEAZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/UEJWOKFTRSVZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/RTYCBUHACGDJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-th-1::control/SAKTZSWAAVOG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/YFFUVDJOSQBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/TUBWWAKIRKHM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/TUBWWAKIRKHM</td>
</tr>
</tbody>
</table>

SH.ElastiCache.3 4959
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>:control/UESOVOADVSMU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Europe (Paris)</strong></td>
<td>arn:aws:controltower:eu-west-3::control/XDXTHCXIPLZN</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>South America (São Paulo)</strong></td>
<td>arn:aws:controltower:sa-east-1::control/QGDFMFQRSBZT</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>US West (N. California)</strong></td>
<td>arn:aws:controltower:us-west-1::control/XQNLRVTQMJZJ</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SH.ElastiCache.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ElastiCache.4</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>Encrypt data at rest</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/ELSTNMSBJRHJ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/CTWGSFKXEHVP</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/BFBUHVUQAHXR</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/TZVUEBTZQYUN</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/OKARFUXXCRPD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/OACBBHOVAEVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/TULMANTMOIIU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/AXTVUKTDCTMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/AHCLGCTDMMNW</td>
</tr>
</tbody>
</table>

**Control identifier**: OKARFUXXCRPD, OACBBHOVAEVA, TULMANTMOIIU, AXTVUKTDCTMC, AHCLGCTDMMNW
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control/BKPIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JHEZYZJ</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-nor</td>
<td></td>
<td>arn:aws:controltower:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/WMUX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>THVQGTVF</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south</td>
<td></td>
<td>arn:aws:controltower:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control/VFVP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EETPEQEZ</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast</td>
<td></td>
<td>arn:aws:controltower:ap-northeast</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EVVXTCRGQFLR</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast</td>
<td></td>
<td>arn:aws:controltower:ap-northeast</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HDKDHUAIWMQA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/MIWPGWTCPNRQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America</strong> (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/GHMJIJSAGKRH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/XUXC0XBMUZAW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.ElastiCache.5   | • NIST 800-53 Rev 5 AC-17(2)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 IA-5(1)  
• NIST 800-53 Rev 5 SC-12(3)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-23  
• NIST 800-53 Rev 5 SC-23(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-8  
• NIST 800-53 Rev 5 SC-8(1)  
• NIST 800-53 Rev 5 SC-8(2)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 2.3  
• PCI DSS version 3.2.1 4.1 | • Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/PWYQKXALPDRY  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/HYCAQOLSMZCV  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/BNPHNRTPVQR  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/OU PAKTMSMUB |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific</strong> <em>(Sydney)</em>&lt;br&gt;arn:aws:controltower:ap-southeast-2::control/YYPPUCNFWOOK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific</strong> <em>(Singapore)</em>&lt;br&gt;arn:aws:controltower:ap-southeast-1::control/LFEWHEAIIGECJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong>&lt;br&gt;arn:aws:controltower:eu-central-1::control/RYKMECNHFEHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong>&lt;br&gt;arn:aws:controltower:eu-west-1::control/TUWNHNHL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong>&lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/IZMXB QXWVJQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/RNEM CHYHNZIR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/IZBM LBVASGIJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/MOZEHOPJBUAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/SH.ElastiCache.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4967</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/WHATZMAFLZTS</td>
<td>• Europe (Paris)</td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/OYJFTWZPOVL</td>
</tr>
<tr>
<td></td>
<td>• South America (São Paulo)</td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/SFOQXYOTHJAL</td>
</tr>
<tr>
<td></td>
<td>• US West (N. California)</td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/BEJQLVXCYDCE</td>
</tr>
</tbody>
</table>
## SH.ElastiCache.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.ElastiCache.6</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Use strong authentication</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/UMVEAKCEXKTZ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/FCYIJPJOZUEC</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/BZVATKLFDCDD</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/BVJRPUSSXDJNH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/:BMQHZUZDYVZZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/:AIFKQIPQMNEX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/ZZ:ETEGSHHBWU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/WSTWCKUNUHSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.ElastiCache.6
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/UVCRQ ZYZWBXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/JVXH GVQAGQDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/FPEP LYGJPXMK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/ICGRGZPUAA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/ICGRGZPUAA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CCKMLVXQNSW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/HAFDHAKBNSLA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-1::control/MRZJGFEJRMAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-1::control/KAJUCVYTWZHC</td>
</tr>
</tbody>
</table>
## SH.ElasticBeanstalk.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.ElasticBeanstalk.1 | • NIST 800-53 Rev 5 CA-7        | • Improve resiliency | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/HFVMYSGPEYDN  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/VVCFXNZNIDRP  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/CUVOLGXTISMS  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/BDAQDLACRNUIJ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/IVNFFJMNHDXC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/QTKGHOCLSKQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/XXHCDRWNECMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/QFIFLSESZLTQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont role/HYKCK ALQSVGN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/AOEP TPWCPMPHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/TJVU CTRUZXBI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/GXYYXMDJPQWS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ VGWIRUAPMVUR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/PZZGZMWJZJUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/ULCSKLZYHVEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/ZBUJLIWPXMZC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.ElasticBeanstalk.2 | • NIST 800-53 Rev 5 SI-2  
• NIST 800-53 Rev 5 SI-2(2)  
• NIST 800-53 Rev 5 SI-2(4)  
• NIST 800-53 Rev 5 SI-2(5)  
• PCI DSS version 3.2.1 6.2 | • Manage vulnerabilities | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/CIYPAZNJKRRG  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/UPAWTQLRRSZX  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/IJZKGIIDVPZUE  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/WIFTJQFJQBYY
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control://ALIABGGIBJQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control://UZMJMWJXYBRE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control://ZMLNMCLPL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control://OTKEBVUKUDWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/LWIJCVNZKWGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/HWWRWNRQAYGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/DWGNUKILACZO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control-2:OLBWUHFKLXTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control-sh:SH.ElasticBeanstalk.24979</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UVWVKZLJVVVR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/OHJMU KRRCYAI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/XVEUI UNHHVRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/FPMFO BUJGTEV</td>
</tr>
</tbody>
</table>
### SH.EventBridge.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.EventBridge.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| NIST 800-53 Rev 5  | • NIST 800-53 Rev 5 AC-2 | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/CVKWOZJRGJWS |
|                    | • NIST 800-53 Rev 5 AC-2(1) |                   | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/XXEZKDEIZLY |
|                    | • NIST 800-53 Rev 5 AC-3 |                   | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/FFODCFLSFQTOD |
|                    | • NIST 800-53 Rev 5 AC-3(15) |                   | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/GUUWDKSVVMB0 |
<p>|                    | • NIST 800-53 Rev 5 AC-3(7) |                   |                                   |
|                    | • NIST 800-53 Rev 5 AC-5 |                   |                                   |
|                    | • NIST 800-53 Rev 5 AC-6 |                   |                                   |
|                    | • NIST 800-53 Rev 5 AC-6(3) |                   |                                   |
|                    | • PCI DSS version 3.2.1 7.1.1 |                   |                                   |
|                    | • PCI DSS version 3.2.1 7.2.1 |                   |                                   |
|                    | • PCI DSS version 3.2.1 7.2.2 |                   |                                   |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2::control/API identifier AKIQOCPERZBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1::control/API identifier VQFSGMZOXVFB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1::control/API identifier PPFVDVTBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1::control/API identifier JALSKERKCEHJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower:eu-west-1::control/API identifier JALSKERKCEHJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/OGHYSXXZSTRA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-th-1::control/OVFHMRIQMYLB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/RUXVSGIGSQEA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/BOCATJEKJNPZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MEUNQCWBTTTPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/QVSPNJKSPQYK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/DNVQQBIRWGUO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/KSRTLKKOIIFH</td>
</tr>
</tbody>
</table>
## SH.GuardDuty.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.GuardDuty.1     | • NIST 800-53 Rev 5 AC-2(12)  
|                    | • NIST 800-53 Rev 5 AU-6(1)  
|                    | • NIST 800-53 Rev 5 AU-6(5)  
|                    | • NIST 800-53 Rev 5 CA-7     
|                    | • NIST 800-53 Rev 5 CM-8(3)  
|                    | • NIST 800-53 Rev 5 RA-3(4)  
|                    | • NIST 800-53 Rev 5 SA-11(1) 
|                    | • NIST 800-53 Rev 5 SA-11(6) 
|                    | • NIST 800-53 Rev 5 SA-15(2) 
|                    | • NIST 800-53 Rev 5 SA-15(8) 
|                    | • NIST 800-53 Rev 5 SA-8(19) 
|                    | • NIST 800-53 Rev 5 SA-8(21) 
|                    | • NIST 800-53 Rev 5 SA-8(25) 
|                    | • NIST 800-53 Rev 5 SC-5     | • Prepare for incident response | • US East (N. Virginia)  
|                    |                                       |                                | arn:aws:controltower:us-east-1:control/HHVKNVANXXAA |
|                    |                                       |                                | • US East (Ohio)  
|                    |                                       |                                | arn:aws:controltower:us-east-2:control/LDUGVICWFLOGH |
|                    |                                       |                                | • US West (Oregon)  
|                    |                                       |                                | arn:aws:controltower:us-west-2:control/APFIGXPGEUMB |
|                    |                                       |                                | • Canada (Central)  
<p>|                    |                                       |                                | arn:aws:controltower:ca-central-1:control/EMCZUTKJSC |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-5(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-5(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(13)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(22)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(25)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 11.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/SEPYALESYFHN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/NOLGMPHOAPVF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/HNRJLKEIRQJ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/KEFOAQPLEGGA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/ WPICO SEVQTYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower: eu-nor th-1::control/BYUK MXPSTZGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower: ap-south-1::control/FITX SLOHMHEK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower: ap-northeast-2::control SXTYEZHKEGVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower: ap-northeast-1:control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/COLEXQFTHZZZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/FCEDI MUYTORU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ZQJRR NJGOEVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ZHDCS URIXQPI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SH.IAM.1</td>
<td>• CIS AWS Benchmark 1.4</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>1.16</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/GQRKBUMEATXJ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>AC-2</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/AMOSAUZUOENC</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>AC-2(1)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/BYCPKIWWCXUS</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>AC-3</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/UIZQWGPRMOAM</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC-3(15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC-3(17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC-6(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC-6(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AC-6(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) ahrs:aws:c ontroltow er:ap-sou theast-2: :control/ LFXQGUJ0ZIVJ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) ahrs:aws:c ontroltow er:ap-sou theast-1: :control/ JUJQVSCCZAMM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) ahrs:aws:c ontroltow er:eu-cen tral-1::c ontrol/RW LDODTORAPO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) ahrs:aws:c ontroltow er:eu-wes t-1::cont rol/GPMRU NIPAAHZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) ahrs:aws:c ontroltow</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/XZFJD HDJZVRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:control:eu-north-1:control/AFVWEIUROE0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:control:ap-south-1:control/TENO MRDYBHFD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:control:ap-northeast-2:control/MFXIIBSZNHFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:control:ap-northeast-1:control/MFXIIBSZNHFF</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/WFEQVTUHENVP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-t-3:control/CFROU/VIMJIDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1:control/RDFMP/AZPDBSW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1:control/PPYXQ/OKDTPWB</td>
</tr>
</tbody>
</table>
## SH.IAM.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.IAM.2</td>
<td>- CIS AWS Benchmark 1.4 1.15</td>
<td>- Enforce least privilege</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 AC-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/CKRCABXILFK</td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 AC-2(1)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/GNUNOTQMCNLP</td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/VBOICSFJPYQV</td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 AC-5</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/BQESNVPCOBD</td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 AC-6(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 AC-6(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 AC-6(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- PCI DSS version 3.2.1 7.1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/YKNIXGERUKGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/NYYWQVOKPQZU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/FQJSHAAJBVJZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/JGYSATNSTORL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/SJWVD QMUPEYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltow er:eu-nor th-1:control/XFGB PVBXFHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltow er:ap-south-1:control/RYBHGRLQNRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltow er:ap-northeast-2:control/YAALMGHJQDZX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltow er:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ACWMIEUICSKY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:3::control/ZDZRSNRNROAX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:1::control/KWGAIQBCVXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:1::control/QOUVCVYJIWOU</td>
</tr>
</tbody>
</table>
## SH.IAM.21

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.IAM.21</td>
<td>• NIST 800-53 Rev 5 AC-2</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/HQVLA TIMVODA</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/WUAKZ ZMFASZA</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-5</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/FEPUE QJBEJE</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6(10)</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/PP LFAEVCJSZX</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| • PCI DSS version 3.2.1 7.2.2 | | | • Asia Pacific (Sydney)  
arn:aws:controltower:ap-southeast-2:control/CWYTGQUDYNSL  
• Asia Pacific (Singapore)  
arn:aws:controltower:ap-southeast-1:control/WUHBFCQMVMRD  
• Europe (Frankfurt)  
arn:aws:controltower:eu-central-1:control/VIPDQGLETFRV  
• Europe (Ireland)  
arn:aws:controltower:eu-west-1:control/PQTGHIEDIOPD  
• Europe (London)  
arn:aws:controltower:eu-west-1:control
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/USZNDRQBZJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/HCJUBNEAECY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/WFVNBRENREI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/MXPNMAHQMHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MIGMWGINEUVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/ICTM AGIPBNJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/CLKMP BZOBOMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/XTNWC GTRKAQQ</td>
</tr>
</tbody>
</table>
## SH.IAM.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.IAM.3</td>
<td>• CIS AWS Benchmark 1.4 1.14</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia) &lt;br&gt;arn:aws:controltower::control/ZEJBJAESPURY</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td></td>
<td>• US East (Ohio) &lt;br&gt;arn:aws:controltower::control/DWHOWHNIGILYZ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-2(3)</td>
<td></td>
<td>• US West (Oregon) &lt;br&gt;arn:aws:controltower::control/NJXSDDNVGFT</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>• Canada (Central) &lt;br&gt;arn:aws:controltower::control/ZB RPUSKMGALZ</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2: :control/ZWZX5P0DRF0N</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1: :control/ZQDCZNSVLW00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1: :control/NY WZTJUIF0UT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1: :control/RHVPZ JVBVRIC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/ WBMPX AAQFWFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/QCUY UTVQDRTV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/RFHK MYZYMHYO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/ MCTNEBTXCMFP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EGBXSELJNDTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:controlrol/XQFZKZXQPJLG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:controlrol/TIINYBAUSDLA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:controlrol/DGSPIXKNFKXXW</td>
</tr>
</tbody>
</table>
# SH.IAM.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.IAM.4           | • CIS AWS Benchmark 1.4 1.4        | • Enforce least privilege          | • US East (N. Virginia)  
|                    | • NIST 800-53 Rev 5 AC-2(1)       |                                    |   arn:aws:controltower:us-east-1::control/MLZMKASTNAMJ      |
|                    | • NIST 800-53 Rev 5 AC-3(15)      |                                    | • US East (Ohio)  
|                    | • NIST 800-53 Rev 5 AC-3(7)       |                                    |   arn:aws:controltower:us-east-2::control/BWMCZWYOPOFV     |
|                    | • NIST 800-53 Rev 5 AC-6          |                                    | • US West (Oregon)  
|                    | • NIST 800-53 Rev 5 AC-6(10)      |                                    |   arn:aws:controltower:us-west-2::control/XMQHVQUWVANU    |
|                    | • NIST 800-53 Rev 5 AC-6(2)       |                                    | • Canada (Central)  
<p>|                    | • PCI DSS version 3.2.1 2.2        |                                    |   arn:aws:controltower:ca-central-1::control/LFHALIRSAOMG  |
|                    | • PCI DSS version 3.2.1 7.1.1      |                                    |                                                             |
|                    | • PCI DSS version 3.2.1 7.1.2      |                                    |                                                             |
|                    | • PCI DSS version 3.2.1 7.2.1      |                                    |                                                             |
|                    | • PCI DSS version 3.2.1 7.2.2      |                                    |                                                             |
|                    | • PCI DSS version 3.2.1 8.1.1      |                                    |                                                             |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ CVT0Q0HCXJYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/KRKFAUZIAZCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/FV FAHXXHVEDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/NEALL BIMAHJU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.IAM.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/PQZZN_TWBVDMA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/WMME_OLOBHWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1::control/MYNF_RQFMDRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/KNDGXYOAJBAD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/KNDGXYOAJBAD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LCWHRMFYRDPM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/JQIXBFLCEXKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/DYTPSGEFQHGZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/KRXFGDZBTYIR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| SH.IAM.5           | • CIS AWS Benchmark 1.4 1.10  
• NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-3(15)  
• NIST 800-53 Rev 5 IA-2(1)  
• NIST 800-53 Rev 5 IA-2(2)  
• NIST 800-53 Rev 5 IA-2(6)  
• NIST 800-53 Rev 5 IA-2(8)  
• PCI DSS version 3.2.1 2.2  
• PCI DSS version 3.2.1 8.3.1  
• PCI DSS version 3.2.1 8.3.2  
• PCI DSS version 3.2.1 8.6 | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/JZAYNLETVJSZ  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/FCWYWZFYZCEFJ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/FJMFLSUYOTC  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/NOOUAVOVBUYEY |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/PLGJLSNGGCIG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/CCOLABWRKEYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/JZQVFKS0FWSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/WUGDSPITURNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/YWKEN JUJLZUI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/HXUN MLYFTBJC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/MAJH POEPBKQMN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control-2:ECYNNUZFPWMI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control</td>
</tr>
</tbody>
</table>

**Control identifier**

**Framework**

**Control objective**

**Control API identifiers, by Region**

- er:eu-wes t-2:control/YWKEN JUJLZUI
- • **Europe (Stockholm)** arn:aws:controltower:eu-north-1:control/HXUN MLYFTBJC
- • **Asia Pacific (Mumbai)** arn:aws:controltower:ap-south-1:control/MAJH POEPBKQMN
- • **Asia Pacific (Seoul)** arn:aws:controltower:ap-northeast-2:control-2:ECYNNUZFPWMI
- • **Asia Pacific (Tokyo)** arn:aws:controltower:ap-northeast-1:control
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/GCNKIMWZRRKL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:t-3:controlWXQUF\ EUZXQLB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:t-1:control/RKTXS\ SCRCOSG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:t-1:control/CWPEY\ HMAQLIX</td>
</tr>
</tbody>
</table>
## SH.IAM.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.IAM.6           | • CIS AWS Benchmark 1.4 1.6  
                  • NIST 800-53 Rev 5 AC-2(1)  
                  • NIST 800-53 Rev 5 AC-3(15)  
                  • NIST 800-53 Rev 5 IA-2(1)  
                  • NIST 800-53 Rev 5 IA-2(2)  
                  • NIST 800-53 Rev 5 IA-2(6)  
                  • NIST 800-53 Rev 5 IA-2(8)  
                  • PCI DSS version 3.2.1 2.2  
                  • PCI DSS version 3.2.1 8.3.1  
                  • PCI DSS version 3.2.1 8.3.2 | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/YXQAYRGZITE  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/VMFIYFNTTOHK  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/MEFQIQZLFYA0  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/RBIDFUAIDOZW |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/DJMVZWKQLQOWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/PUNPGEQKLGNW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/NKLMWZYNKALI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/FSWHMTMWCPCU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/EQQYP BMTXUZP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/RIYG DTPNPQHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/HIVW UODPEDII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/BOIRCXQEYNLQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/BOIRCXQEYNLQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FFFZNTDNXQVY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/WTTOH MYBKCFD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ZDQYG ZQRVUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/XPMKI IBTFCPX</td>
</tr>
</tbody>
</table>
### SH.IAM.7

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.IAM.7           | • CIS AWS Benchmark 1.4 1.8                    | • Protect configurations | • US East (N. Virginia)  
  arn:aws:controltower:us-east-1::control/YJDQWPMBKQWV  
• US East (Ohio)    | arn:aws:controltower:us-east-2::control/QJKCDNAHSGNU  
• US West (Oregon)  | arn:aws:controltower:us-west-2::control/VBKLMEHVTZB  
• Canada (Central)  | arn:aws:controltower:ca-central-1::control/YARIGWZBSL  
<p>|                    | • CIS AWS Benchmark 1.4 1.9                    |                  | • NIST 800-53 Rev 5 AC-2(1)         |
|                    | • NIST 800-53 Rev 5 AC-2(3)                    |                  | • PCI DSS version 3.2.1 8.2.3       |
|                    | • NIST 800-53 Rev 5 AC-3(15)                   |                  | • PCI DSS version 3.2.1 8.2.4       |
|                    | • NIST 800-53 Rev 5 IA-5(1)                    |                  | • PCI DSS version 3.2.1 8.2.5       |
|                    | • PCI DSS version 3.2.1 8.2.3                  |                  |                                    |
|                    | • PCI DSS version 3.2.1 8.2.4                  |                  |                                    |
|                    | • PCI DSS version 3.2.1 8.2.5                  |                  |                                    |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/XLUHJBTPSEGR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/GLWFPUPESYOC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/IQPAHZJVRRMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/ASYFZUOMHFUQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.IAM.7 5018
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/AKBRE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XBVUKLY</td>
</tr>
<tr>
<td>• <strong>Europe (Stockholm)</strong></td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/LIUJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KZCJEXBK</td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Mumbai)</strong></td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/XADX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOPDEFZN</td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Seoul)</strong></td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KGKMFVFEKJMLZ</td>
</tr>
<tr>
<td>• <strong>Asia Pacific (Tokyo)</strong></td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FRIQSUKOEAVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/IEVZF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DCMJQBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/WJKCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OEITNXY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/GJMED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GOCQHMC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------</td>
<td>----------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SH.IAM.8</td>
<td>• CIS AWS Benchmark 1.4 1.12</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/DYZBFPIWFDCI</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-2(3)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/JQZWJZWMTQCI</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/VUQQVIQVRPBS</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/SDKZNLRQZVJYU</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/HEXKEUELTWUJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ALXCCRNIHSHQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/XZDDELXKYDNY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/OTDQBWDVYVJE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-t-2:control/UNYQJZPHYTYB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/ABCVAFYFOUZL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south th-1:control/FKPJQKAODREW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/LLXPAYEHWBT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

SH.IAM.B  5023
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AYWUKJZBDYQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3::control/OPPELVTHMAQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1::control/VRSVTEXAEZZH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1::control/XVHDUOVHZBUS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.KMS.1           | • NIST 800-53 Rev 5 AC-2  
• NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-3(15)  
• NIST 800-53 Rev 5 AC-5  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 AC-6(3)  
• PCI DSS version 3.2.1 3.5.2  
• PCI DSS version 3.2.1 7.1.1  
• PCI DSS version 3.2.1 7.1.2  
• PCI DSS version 3.2.1 7.2.1  
• PCI DSS version 3.2.1 7.2.2 | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/ZYVSVOFNLNTNG  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/NUJRZCEGSRSQ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/OONPBHUUNDTIP  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/VZYJNYATGYQB |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/YBGERSBVCEHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/IWKWHAGMHFQU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/QGQGZMRWIRVZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/YIKIWDHYLGBP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/YIKIWDHYLGBP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/ ZHHPI YVVGYPR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower: eu-nor th-1::control/QKTH XYQPLNYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower: ap-sou th-1::control/IGBZ SWRYBKOJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower: ap-nor theast-2: :control/HEQYHQMETWVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower: ap-nor theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BYXFJJHFUZOU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:eu-west-3::control/GTNCXJXJAMYN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:sa-east-1::control/IIMAAOEMTFUC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:us-west-1::control/BWBCBIXNWVGXU</td>
</tr>
</tbody>
</table>
## SH.KMS.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.KMS.2</td>
<td>• NIST 800-53 Rev 5 AC-2&lt;br&gt;• NIST 800-53 Rev 5 AC-2(1)&lt;br&gt;• NIST 800-53 Rev 5 AC-3&lt;br&gt;• NIST 800-53 Rev 5 AC-3(15)&lt;br&gt;• NIST 800-53 Rev 5 AC-3(7)&lt;br&gt;• NIST 800-53 Rev 5 AC-5&lt;br&gt;• NIST 800-53 Rev 5 AC-6&lt;br&gt;• NIST 800-53 Rev 5 AC-6(3)&lt;br&gt;• PCI DSS version 3.2.1 3.5.2&lt;br&gt;• PCI DSS version 3.2.1 7.1.1&lt;br&gt;• PCI DSS version 3.2.1 7.1.2&lt;br&gt;• PCI DSS version 3.2.1 7.2.1&lt;br&gt;• PCI DSS version 3.2.1 7.2.2</td>
<td>• Enforce least privilege</td>
<td>• US East (N. Virginia)&lt;br&gt;arn:aws:controltower:us-east-1::control/QNVYEARPCKHY&lt;br&gt;• US East (Ohio)&lt;br&gt;arn:aws:controltower:us-east-2::control/LTNDXSCGBACC&lt;br&gt;• US West (Oregon)&lt;br&gt;arn:aws:controltower:us-west-2::control/KOWUMYGVIEUY&lt;br&gt;• Canada (Central)&lt;br&gt;arn:aws:controltower:ca-central-1::control/IXRRCZUELMDU</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/NHKYZBGUEQPJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/KSMDOJXHBPMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/YGKEXZMFRPPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/KPKAHTFYDJQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/KPKAHTFYDJQQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/PKKCOIZMWYXC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/WTDVCVDHOVVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/JBHOZLAJZRHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control:CUVJHPIMJUHF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control:SH.KMS.25031</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BRCRZNYQLWRK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3:control/UOEWOHQTFMZC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1:control/IITOVJDNGAND</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1:control/HAYAUPLTJHPL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.KMS.3           | • NIST 800-53 Rev 5 SC-12  
                    • NIST 800-53 Rev 5 SC-12(2)  
                    • PCI DSS version 3.2.1 3.6.5  
                    • PCI DSS version 3.2.1 3.6.7 | • Protect data integrity | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/CKCEVZPVWRJ  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/HKNGPDGPWTEN  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/JNOLPJAAZDRU  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/QRKASNXFSCTZ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Asia Pacific (Sydney)**
  arn:aws:controltower:ap-southeast-2::control/BDIQMPNVEKNT

- **Asia Pacific (Singapore)**
  arn:aws:controltower:ap-southeast-1::control/TUHCPYQGZEHJ

- **Europe (Frankfurt)**
  arn:aws:controltower:eu-central-1::control/TRHPTRLDZSJY

- **Europe (Ireland)**
  arn:aws:controltower:eu-west-1::control/VLQZE LIVKMED

- **Europe (London)**
  arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/MVMZX TDTZZOF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-nor th-1::control/UESQ JJTMCLKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-th-1::control/APZN ZRNDYXHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/IRPUDLZBQQWO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/SH.KMS.3 5035</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/SMQGPFWVOPUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:t-3:control/rol/HSHOQZGIQHCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:t-1:control/rol/XIVTDDCWRGYG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:t-1:control/rol/WVDONOWFFERT</td>
</tr>
</tbody>
</table>
## SH.KMS.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.KMS.4           | • CIS AWS Benchmark 1.4 3.8 • NIST 800-53 Rev 5 SC-12 • NIST 800-53 Rev 5 SC-12(2) • NIST 800-53 Rev 5 SC-28(3) • PCI DSS version 3.2.1 2.2 • PCI DSS version 3.2.1 3.6.4 | • Encrypt data at rest          | **US East (N. Virginia)**
arn:aws:controltower:us-east-1::control/KCRHFJYLWGRJ
**US East (Ohio)**
arn:aws:controltower:us-east-2::control/NSBUGYBQMNCC
**US West (Oregon)**
arn:aws:controltower:us-west-2::control/ZISYMNHRKXUX
**Canada (Central)**
arnc:aws:controltower:ca-central-1::control/CG0LOMNECFEN |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/XMHSZGFVUCKV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/XJHAYWLPKCMW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/THPIDDSSFYIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/PFKREHBJDPLH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/SH.KMS.45038</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:cont rol/PFYJK VBDZVPK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/EZTP QMVHTQTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-east-2:control/YSEVCOKRFQTC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/YSEVCOKRFQTC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/YSEVCOKRFQTC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/GACATEGITTZC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/BJNOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WJ0CTHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/TFYP5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KCNCX0X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/KWKAW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RIJNZHS</td>
</tr>
</tbody>
</table>
### SH.Kinesis.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Kinesis.1       | • NIST 800-53 Rev 5 CA-9(1)  
                     • NIST 800-53 Rev 5 CM-3(6)  
                     • NIST 800-53 Rev 5 SC-13  
                     • NIST 800-53 Rev 5 SC-28  
                     • NIST 800-53 Rev 5 SC-28(1)  
                     • NIST 800-53 Rev 5 SC-7(10)  
                     • NIST 800-53 Rev 5 SI-7(6)  
                     • PCI DSS version 3.2.1 3.4 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1:control/LKIISYYCVINO  
• US East (Ohio)  
arn:aws:controltower:us-east-2:control/LFMGOMWMIZYW  
• US West (Oregon)  
arn:aws:controltower:us-west-2:control/MGBKMLYFDEG  
• Canada (Central)  
arn:aws:controltower:ca-central-1:control/XWJFEUSBZYWC |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/LJRFKNWNZTFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/YTWGDULHCPTP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/OZCCICXZVLAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland) arn:aws:controltower:eu-west-1::control/OXTK0QQPJYIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London) arn:aws:controltower:eu-west-1::control/OXTK0QQPJYIB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/DFKOUJD YFDPEJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/PREP RJHMCLIQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/YPEWSZCWJIUR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-north-east-2:control/WTQVFWIGVFQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-north-east-1:control/SH.Kinesis.1 5043</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Europe (Paris)**
  arn:aws:controltower:eu-west-3::control/AHSFQWOFMNRN

- **South America (São Paulo)**
  arn:aws:controltower:sa-east-1::control/QBJVWZOQCTXK

- **US West (N. California)**
  arn:aws:controltower:us-west-1::control/CZCPIUJBEXHI
## SH.Lambda.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Lambda.1        | NIST 800-53 Rev 5 AC-21 | Limit network access | **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/SRLPVJHNHYTD |
|                    | NIST 800-53 Rev 5 AC-3   |                      | **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/ORSOXPSFFMIB |
|                    | NIST 800-53 Rev 5 AC-3(7)|                      | **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/BNIHRCLLGNHH |
|                    | NIST 800-53 Rev 5 AC-4   |                      | **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/B0WRFNRKVWJH |
<p>|                    | NIST 800-53 Rev 5 AC-4(21)|                     |                     |
|                    | NIST 800-53 Rev 5 AC-6   |                      |                     |
|                    | NIST 800-53 Rev 5 SC-7   |                      |                     |
|                    | NIST 800-53 Rev 5 SC-7(7)|                      |                     |
|                    | NIST 800-53 Rev 5 SC-7(11)|                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(16)|                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(20)|                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(21)|                     |                     |
|                    | NIST 800-53 Rev 5 SC-7(3) |                      |                     |
|                    | NIST 800-53 Rev 5 SC-7(4) |                      |                     |
|                    | NIST 800-53 Rev 5 SC-7(9) |                      |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/UQXXELUQDDB0</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/VTLSMHLQZNAJ</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/WXFRGPFWBNLR</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/JADBMJXDJEUI</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::contr ol/TYKOS EICGFCJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:contro ltower er:eu-nor th-1::contr ol/EEWU ILLNDCOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:contro ltower er:ap-sou th-1::contr ol/WLOT GENGLMYP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:contro ltower er:ap-nor theast-2: :control/ FQMQXEDYMYNK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:contro ltower er:ap-nor theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/OYRNNPFIKAPV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/BGDFNHLTPMUE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/IHXAQZRZTQAV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/YKGFFWTMFNXR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.Lambda.2        | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-2  
• NIST 800-53 Rev 5 SI-2  
• NIST 800-53 Rev 5 SI-2(2)  
• NIST 800-53 Rev 5 SI-2(4)  
• NIST 800-53 Rev 5 SI-2(5)  
• PCI DSS version 3.2.1 2.2 | • Manage vulnerabilities | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/IOGKXEBDRDUW  
• US East (Ohio)  
ar:n:aws:controltower:us-east-2::control/MUKLGCYGHQH  
• US West (Oregon)  
ar:n:aws:controltower:us-west-2::control/KIIONODJWVSXV  
• Canada (Central)  
ar:n:aws:controltower:ca-central-1::control/QWRAUMZQGM |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

- **Asia Pacific (Sydney)**
  - arn:aws:controltower:ap-southeast-2::control/TOCWOWCANSFU

- **Asia Pacific (Singapore)**
  - arn:aws:controltower:ap-southeast-1::control/NPXHIQYCWKOR

- **Europe (Frankfurt)**
  - arn:aws:controltower:eu-central-1::control/WLFraudCRAIPB

- **Europe (Ireland)**
  - arn:aws:controltower:eu-west-1::control/PIGBBNREIU

- **Europe (London)**
  - arn:aws:controltower:eu-west-1::control/PIGBBNREIU
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/ETXIN VUEIROP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:c ontroltower er:eu-nor th-1::cont rol/SNXJDQUCDOM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:c ontroltower er:ap-sou th-1::cont rol/BHBS EUQUFGWLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:c ontroltower er:ap-nor theast-2: :control/ QPNEMKAWAOIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:c ontroltower er:ap-nor theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>HVGTUUNEPBRE</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-wes:t-3:control:role/MNLNHLMNFTWZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-eas:t-1:control:role/YKPNTLKCMXXE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-wes:t-1:control:role/ZLUQNBG0PGBC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SH.Lambda.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Lambda.3        | • NIST 800-53 Rev 5 AC-21  
                        • NIST 800-53 Rev 5 AC-3  
                        • NIST 800-53 Rev 5 AC-3(7)  
                        • NIST 800-53 Rev 5 AC-4  
                        • NIST 800-53 Rev 5 AC-4(21)  
                        • NIST 800-53 Rev 5 AC-6  
                        • NIST 800-53 Rev 5 SC-7  
                        • NIST 800-53 Rev 5 SC-7(11)  
                        • NIST 800-53 Rev 5 SC-7(16)  
                        • NIST 800-53 Rev 5 SC-7(20)  
                        • NIST 800-53 Rev 5 SC-7(21)  
                        • NIST 800-53 Rev 5 SC-7(3)  
                        • NIST 800-53 Rev 5 SC-7(4)  
                        • NIST 800-53 Rev 5 SC-7(9)  |
|                    | • Limit network access |                  | • US East (N. Virginia)  
                        |                        | arn:aws:controltower:us-east-1::control/PEKUMESILPFW |
|                    |                        |                  | • US East (Ohio)  
                        |                        | arn:aws:controltower:us-east-2::control/XCWRDKSXIABC |
|                    |                        |                  | • US West (Oregon)  
                        |                        | arn:aws:controltower:us-west-2::control/UUIZSUBLVZZ |
|                    |                        |                  | • Canada (Central)  
<pre><code>                    |                        | arn:aws:controltower:ca-central-1::control/WQKOVTMBTFSI |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/EUFJHWDURPMH</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/BJGEEFFTPQV</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/IWVKFZSXRHHS</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/ILRWQBZXYBBL</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/VTJHB PAMJPSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/YMEO/WGILVDCE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/EUDG/MAMQFGDU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/MGIYSFEIQJYE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/MGIYSFEIQJYE</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CELGBNIGQSFA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/WNZVT LIZNQMH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/RHFDH ZUNYHNI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/NJAAZ CVHWYUP</td>
</tr>
</tbody>
</table>
### SH.Lambda.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.Lambda.5</td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Improve availability</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/MHEKRUMWQLBJ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/LWOJRFJJEDHR</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/QTBXGAAGFVRJ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/XYQBLRUDYNB</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/WTXQRFALXGYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/BNVXXZALUMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/NAQQDSSDPLIK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/FBQFGSETXZRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.Lambda.5 5058
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/OVFVG QGZLEZR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/IICO IHCGFGGGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1:control/PYKS DWCTUPJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/KSCPKEAMJICJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/KSCPKEAMJICJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/EAYLGRQVQPQZ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Europe (Paris)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:eu-wes:t-3:control/CJBTYDOANLPH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>South America (São Paulo)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:sa-eas:t-1:control/AUWVLGTJACCW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>US West (N. California)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arn:aws:controltower:us-wes:t-1:control/JSXJPJEPESCWV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.MQ.5           | • NIST 800-53 Rev 5 CP-10  | • Improve availability | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/IOJURKAHDJMK |
|                   | • NIST 800-53 Rev 5 CP-6(2) |                   | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/NRCJELYAOPRR |
|                   | • NIST 800-53 Rev 5 SC-36   |                   | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/NMKTHYJZCOIT |
|                   | • NIST 800-53 Rev 5 SC-5(2) |                   | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/ANJDRBFUQKHR |
<p>|                   | • NIST 800-53 Rev 5 SI-13(5)|                   |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/BXDSOSNWHWBB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/RVHWTOZMZZUC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/KBVNMWIIURNX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/JJVAOYWEWKV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/JJVAOYWEWKV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/MWCMT RXTJIVB</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/CWMC QNYSVMCK</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/GHRH LPKDQNUD</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/HVKNXPZTQPPN</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/VOWVNNHPZEW0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/IGHALIQSHBFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/BJPEFAAXQVXQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/GTDMYCGJOUBA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------</td>
<td>-------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| SH.MQ.6            | • NIST 800-53 Rev 5 CP-10        | • Improve availability | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/JDWPBMAQOJIU         |
|                    | • NIST 800-53 Rev 5 CP-6(2)      |                   | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/QUICIQKYMPLV           |
|                    | • NIST 800-53 Rev 5 SC-36        |                   | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/WPETNRUNQIYJ        |
|                    | • NIST 800-53 Rev 5 SC-5(2)      |                   | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/WHBLMHZIKBCR   |
<p>|                    | • NIST 800-53 Rev 5 SI-13(5)     |                   |                                                                         |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/BXVOZYIINNMW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/EDUJATALIZZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/LNOLMETQBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/LVPBTGSSLQOLOL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-wes t-2:control/CDUYE YRCARPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/FLTT TDXFEOZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1:control/FLTT TDXFEOZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/PHYTUYFNIZVS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/PHYTUYFNIZVS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DTPEGZXDCDAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/VCJWHYALYQMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/HDKUIDUXEZBT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/WGTNZMKTGNLH</td>
</tr>
</tbody>
</table>
## SH.MSK.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.MSK.1           | • NIST 800-53 Rev 5 AC-4  
                     • NIST 800-53 Rev 5 SC-13  
                     • NIST 800-53 Rev 5 SC-23  
                     • NIST 800-53 Rev 5 SC-23(3)  
                     • NIST 800-53 Rev 5 SC-7(4)  
                     • NIST 800-53 Rev 5 SC-8  
                     • NIST 800-53 Rev 5 SC-8(1)  
                     • NIST 800-53 Rev 5 SC-8(2)  
                     • PCI DSS version 3.2.1 2.3  
                     • PCI DSS version 3.2.1 4.1  
                     • PCI DSS version 3.2.1 8.2.1 | • Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/ZCBBRHHIQTGB  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/AIEOAKHYQUJQ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/RIUWKWDXOUKP  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/CD BVKPRQKJYK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/AKMDCPLQCITK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/NNUGSISVJIGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/XNGBVCCEGVLW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/TWJDIQOIAYHG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-t-2:control/ZQWGL UDTFVAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-th-1:control/VNXU VZMZSZNK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-th-1:control/JVUE LRTAEORI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/EIPLVFPXPLAW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/APPECGHSBOJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
</tbody>
</table>
|                    |           |                  | arn:aws:controltower:eu-west-3::control/TPJQE
|                    |           |                  | MSHIIOD                            |
|                    |           |                  | • **South America (São Paulo)**   |
|                    |           |                  | arn:aws:controltower:sa-east-1::control/REJGV
|                    |           |                  | XRIBJFD                            |
|                    |           |                  | • **US West (N. California)**     |
|                    |           |                  | arn:aws:controltower:us-west-1::control/KSDTB
<p>|                    |           |                  | SQNPNJT                            |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.Neptune.1</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/ERKIRHGBAAOK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/PRPAALVXURGL</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/JWHRKTXTDDMQ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/PWBVWSWBTQAD</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Asia Pacific (Sydney)</td>
<td>Asia Pacific</td>
<td>Control Tower</td>
<td>arn:aws:controltower:ap-southeast-2::control/YIRYWJNNTLLE</td>
</tr>
<tr>
<td>Asia Pacific (Singapore)</td>
<td>Asia Pacific</td>
<td>Control Tower</td>
<td>arn:aws:controltower:ap-southeast-1::control/QYYYRRLWTOMG</td>
</tr>
<tr>
<td>Europe (Frankfurt)</td>
<td>Europe</td>
<td>Control Tower</td>
<td>arn:aws:controltower:eu-central-1::control/OTZEVSPPCPAV</td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td>Europe</td>
<td>Control Tower</td>
<td>arn:aws:controltower:eu-west-1::control/GDXCMPUTLMSY</td>
</tr>
<tr>
<td>Europe (London)</td>
<td>Europe</td>
<td>Control Tower</td>
<td>arn:aws:controltower:eu-west-1::control/GDXCMPUTLMSY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er.eu-west-2::control/NWDVP EPKHXDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-th-1::control/YGCC JHPDGFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/YDRDBHSTEGFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control:HKGQLNIXOUFMFP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control:SH.Neptune.1 5075</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/LJMZKYYZPTBK</td>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/FMPKPQKUTUJS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/SPUKKNHZROPV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-1::control/IXGQFTYIITQP</td>
<td></td>
</tr>
</tbody>
</table>
## SH.Neptune.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Neptune.2       | • NIST 800-53 Rev 5 AC-2(4)  
                      • NIST 800-53 Rev 5 AC-4(26)  
                      • NIST 800-53 Rev 5 AC-6(9)  
                      • NIST 800-53 Rev 5 AU-10  
                      • NIST 800-53 Rev 5 AU-12  
                      • NIST 800-53 Rev 5 AU-2  
                      • NIST 800-53 Rev 5 AU-3  
                      • NIST 800-53 Rev 5 AU-6(1)  
                      • NIST 800-53 Rev 5 AU-6(3)  
                      • NIST 800-53 Rev 5 AU-6(4)  
                      • NIST 800-53 Rev 5 AU-6(5)  
                      • NIST 800-53 Rev 5 AU-7(1)  
                      • NIST 800-53 Rev 5 AU-9(7)  
                      • NIST 800-53 Rev 5 CA-7 | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/NZSQKKEQDXLV  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/QHVCYKPZDPBEK  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/JWQLYMAHKVLO  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/NUNSEOUQVSHL |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td>Framework</td>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/FUPOVEEUOSWA</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-20</td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/GUOLSHIXWFMQ</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/ZDKOVBBQRWP</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(20)</td>
<td></td>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/NEEDBPTRKGKNC</td>
</tr>
</tbody>
</table>
| • NIST 800-53 Rev 5 SI-4(5) | | • Europe (London) | arn:aws:controltower:

---

**PCI DSS version 3.2.1 10.1**

**PCI DSS version 3.2.1 10.2.1**

**PCI DSS version 3.2.1 10.2.2**

**PCI DSS version 3.2.1 10.2.3**

**PCI DSS version 3.2.1 10.2.4**

**PCI DSS version 3.2.1 10.2.5**

**PCI DSS version 3.2.1 10.2.7**

**PCI DSS version 3.2.1 10.3.1**

**PCI DSS version 3.2.1 10.3.2**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/COQXZ KYKBNXQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/UMZN LNFRFXWU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/ZPZG KOGHBUPR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/HQGZCYUDHVRM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/SKHX0XXXAWZZH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/IVQMA LLVRGXW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/PJBDTIYTNLGL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/BUNWDCJNVGGI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.Neptune.3       | • NIST 800-53 Rev 5 AC-21  
                      • NIST 800-53 Rev 5 AC-3  
                      • NIST 800-53 Rev 5 AC-3(7)  
                      • NIST 800-53 Rev 5 AC-4  
                      • NIST 800-53 Rev 5 AC-4(21)  
                      • NIST 800-53 Rev 5 AC-6  
                      • NIST 800-53 Rev 5 SC-7  
                      • NIST 800-53 Rev 5 SC-7(11)  
                      • NIST 800-53 Rev 5 SC-7(16)  
                      • NIST 800-53 Rev 5 SC-7(20)  
                      • NIST 800-53 Rev 5 SC-7(21)  
                      • NIST 800-53 Rev 5 SC-7(3)  
                      • NIST 800-53 Rev 5 SC-7(4)  
                      • NIST 800-53 Rev 5 SC-7(9)  
                      • Enforce least privilege |
|                    | • US East (N. Virginia)  
                      • US East (Ohio)  
                      • US West (Oregon)  
                      • Canada (Central)  
                      • US East (N. Virginia)  
                      • US East (Ohio)  
                      • US West (Oregon)  
                      • Canada (Central)  
                      • US East (N. Virginia)  
                      • US East (Ohio)  
                      • US West (Oregon)  
                      • Canada (Central)  
                      • US East (N. Virginia)  
                      • US East (Ohio)  
                      • US West (Oregon)  
                      • Canada (Central)  
                      • US East (N. Virginia)  
                      • US East (Ohio)  
                      • US West (Oregon)  
                      • Canada (Central)  |
|                    | • US East (N. Virginia)  
                      • US East (Ohio)  
                      • US West (Oregon)  
                      • Canada (Central)  |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/GPRIYFLJKTBB</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/QTLTUBCUAGTR</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/ZKDTBATDAALE</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/GPMZXKOJOEE</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/YXJIW SXJEKIM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong>&lt;br&gt;arn:aws:control/tower:eu-nor th-1:control/EREE UEZTQQVI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong>&lt;br&gt;arn:aws:control/tower:ap-south-1:control/MWNO LNFGIQDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong>&lt;br&gt;arn:aws:control/tower:ap-northeast-2:control/AGQDWLBSVZHW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong>&lt;br&gt;arn:aws:control/tower:ap-northeast-1:control/SH.Neptune.3 5083</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FTUDBPPTFLVO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::controlrole/AZVYVLXSEMIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::controlrole/JNYGVGSVCVBI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::controlrole/XLFTYXPVMTGB</td>
</tr>
</tbody>
</table>
## SH.Neptune.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.Neptune.4</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Improve availability</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/KYVCQZLJTYAV</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td>• Protect configurations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/ILBNGYEWNVEW</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/RBAJHJOAQMVK</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/OV WJICMFBDRQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/TUXNKQCYFAHX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ODXEWSFKGMDG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:europe-central-1::control/KQNOJHSPSWZH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:europe-west-1:control/DMWNI CKIQVGC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/RINTJ PAJKWUU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-th-1::control/ADOR VDROWVPA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/WYUU HCKLJMJJN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/GYPMVKORWSCM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/GYPMVKORWSCM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DWOABBMIWODR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/akzdx</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>qmjomp</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/okvbk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>khimktc</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/rcju</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>cvklosb</td>
</tr>
</tbody>
</table>
## SH.Neptune.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Neptune.5 | • NIST 800-53 Rev 5 SI-12  
• PCI DSS version 3.2.1 3.1 | • Improve resiliency | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/ZYAJHMJFHKWJ  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/CKIKYVTTLNFL  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/LCVPESGNCLWT  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/DHYIFIEGKCHK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/IEOEHVFUPUO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AHWGAETJPNSM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/ETKRDEYM0PRO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/KPAXHZNWNSWE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/DCOYC PDNYJUE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong></td>
</tr>
</tbody>
</table>

SH.Neptune.5 5091
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/0HKXCRIQIZFT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/IPXRSRRYYRJC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/FFMGXYSRLTRM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/PCCBHGBJUDJZ</td>
</tr>
</tbody>
</table>
## SH.Neptune.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Neptune.6       | • NIST 800-53 Rev 5 CA-9(1)  
                        • NIST 800-53 Rev 5 CM-3(6)  
                        • NIST 800-53 Rev 5 SC-13  
                        • NIST 800-53 Rev 5 SC-28  
                        • NIST 800-53 Rev 5 SC-28(1)  
                        • NIST 800-53 Rev 5 SC-7(10)  
                        • NIST 800-53 Rev 5 SI-7(6)  
                        • PCI DSS version 3.2.1 3.4  
                        • PCI DSS version 3.2.1 8.2.1 | • Encrypt data at rest |  
                        • US East (N. Virginia)  
                           arn:aws:controltower:us-east-1::control/FUHJ0TQRVJKS  
                        • US East (Ohio)  
                           arn:aws:controltower:us-east-2::control/OWJHHGLSKKCZ  
                        • US West (Oregon)  
                           arn:aws:controltower:us-west-2::control/WGJJYXWWBSKA  
                        • Canada (Central)  
                           arn:aws:controltower:ca-central-1::control/VRMZNTY0FHJ  |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/KMNEEERHOZWO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/KYGVJYXTEIYZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/VIKNQ0EUEA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/FSEXTXDBFHGZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/ MZGGV MWREOLW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/CQHZ FMPTVOVN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/RGTM IUHBCJER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/DWWVOIHDHQNZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ZIAVHWESTETC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/mdugr/jdvhoan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/midtn/rjvelzh</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/aigzv/ihziktp</td>
</tr>
</tbody>
</table>
## SH.Neptune.7

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.Neptune.7</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Use strong authentication</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/QUQXK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>RSLQMMU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/CWAKJ</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td>SEKLKFQ</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.7</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/WKEGT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XZTMJQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/IX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZCJBXMBCGV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ELPFKNRXKOFT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/HTMETSUNKKNC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/ZWWOWACAAKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/JUDPXQZMWMHP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/ZSKMJ GSZRJ0L</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:con troltow er:eu-nor th-1::con trol/WJIX MOGGTBSR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:con troltow er:ap-sou th-1::con trol/ZREI JBCXRJCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:con troltow er:ap-nor theast-2: :control/ USIGXWBKCXXC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:con troltow er:ap-nor theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/SMQUYAKAPIBQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/YYRZENLBFMKW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/POBIUAEMUMJJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-1::control/RZVQJRSEMVOJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.Neptune.8       | - NIST 800-53 Rev 5 CA-9(1)  
- NIST 800-53 Rev 5 CM-2  
- NIST 800-53 Rev 5 CM-2(2)  
- PCI DSS version 3.2.1 2.2  
- PCI DSS version 3.2.1 2.4 | - Protect configurations | - **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/VVPIJUDOURCA  
- **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/RFZSTHMECLZN  
- **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/HZVBZDZLPYJP  
- **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/MN  SOQMMBYSSN |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/FLKRVTMMLUMN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/POJMDJSLIUJF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/PNMLKBCTHPLN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/IPODTVQNOEC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/KYNIT BYARJGK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/BUEA ZKYAMIKM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/IQNC AGYRQMAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control:WHZKUALDWLXH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control:SH.Neptune.8</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FFYZCCNNCFOI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/YLGUUUJTSQLD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/UGAKIQSFNZMUSFQTelialbajir</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/IOZSELCXPRJP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SH.NetworkFirewall.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.NetworkFirewall.3</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)  &lt;br&gt;arn:aws:controltower:us-east-1::control/DAEZMRPYHYWWW</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>• US East (Ohio)  &lt;br&gt;arn:aws:controltower:us-east-2::control/ZQAOKRZIJCKXK</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td>• US West (Oregon)  &lt;br&gt;arn:aws:controltower:us-west-2::control/MNFWKRSSELQI</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 11.4</td>
<td></td>
<td>• Canada (Central)  &lt;br&gt;arn:aws:controltower:ca-central-1::control/OVLTEU00AYRM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/TIPAEJGHISPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/JVTCEOYSPTGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/TFSSQYTBVRTD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/JTCGWNUCWXGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>role/SJFAU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IKIWZPF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OWFE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MSEFETJT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KXEC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UXEPWAE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SIHZYNYKWUBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1::control</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ECCRBKUVPRPY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/PRDCU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MRODGQB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/NBAGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DCLBADT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/VQSZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TLFDMPV</td>
</tr>
</tbody>
</table>
### SH.NetworkFirewall.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.NetworkFirewall.4 | - NIST 800-53 Rev 5 CA-9(1)  
- NIST 800-53 Rev 5 CM-2  
- PCI DSS version 3.2.1 1.2.1  
- PCI DSS version 3.2.1 1.3  
- PCI DSS version 3.2.1 1.3.1  
- PCI DSS version 3.2.1 1.3.2  
- PCI DSS version 3.2.1 1.3.4  
- PCI DSS version 3.2.1 1.3.6 | - Limit network access | - **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/HGOJKKYHHZHX  
- **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/NTLDJCLFBWUL  
- **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/CWNUOQODLOSL  
- **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/NDXZ0SZBZAZP |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/EVSNHFCDZNEP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/CERIDGZLWHOZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/CKQTVOBLJVXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/IDRAWMSHQVAB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.NetworkFirewall.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>er:eu-west-2:control/SBJTKQLKUMRB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/VFYTJNCARANB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/HAHSWPLBYDBY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/YXCJHLEGWVHW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/YXCJHLEGWVHW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/LZJFDKEAPALS</td>
<td>Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/NYONNGGEHZHP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/ZTXGNKAKQSMA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>US West (N. California)</td>
<td>arn:aws:controltower:us-west-1::control/DAOBSZNWEUPW</td>
<td></td>
</tr>
</tbody>
</table>
### SH.NetworkFirewall.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.NetworkFirewall.5 | - NIST 800-53 Rev 5 CA-9(1)  
- NIST 800-53 Rev 5 CM-2  
- PCI DSS version 3.2.1 1.2.1  
- PCI DSS version 3.2.1 1.3  
- PCI DSS version 3.2.1 1.3.1  
- PCI DSS version 3.2.1 1.3.2  
- PCI DSS version 3.2.1 1.3.4  
- PCI DSS version 3.2.1 1.3.6 | - Limit network access | - US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/BATNYBOOGVK  
- US East (Ohio)  
arn:aws:controltower:us-east-2::control/CECJUСSKGADN  
- US West (Oregon)  
arn:aws:controltower:us-west-2::control/AWRAGIQYHJDZ  
- Canada (Central)  
arn:aws:controltower:ca-central-1::control/UYDVGEXRollarf}
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/VZMVHIMBIXOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/XGOFVGCGBCZM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/EA JHPCQELMZV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/WWSRL JHIIWPV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/ZENWX CHUOHMG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/GJZC YPSNOAFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/OWXS VHKNPIX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/RCAFDPAGIMPZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/SH.NetworkFirewall.5</td>
</tr>
</tbody>
</table>

SH.NetworkFirewall.5 5115
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ERGWLQRSNYOZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/rol/BVMXM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MWXNCKR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/rol/IPOXU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DFDGKOD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/rol/DEXQD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IFLMJXV</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.NetworkFirewall.6 | - NIST 800-53 Rev 5 AC-4(21)  
- NIST 800-53 Rev 5 SC-7  
- NIST 800-53 Rev 5 SC-7(11)  
- NIST 800-53 Rev 5 SC-7(16)  
- NIST 800-53 Rev 5 SC-7(21)  
- NIST 800-53 Rev 5 SC-7(5)  
- PCI DSS version 3.2.1 1.2.1  
- PCI DSS version 3.2.1 1.3  
- PCI DSS version 3.2.1 1.3.1  
- PCI DSS version 3.2.1 1.3.2  
- PCI DSS version 3.2.1 1.3.4  
| - Limit network access | - US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/KMTLZUHSLMDH | - US East (Ohio)  
arn:aws:controltower:us-east-2::control/VITJPKDJTMUBU | - US West (Oregon)  
arn:aws:controltower:us-west-2::control/SCVMOZZWOZTV | - Canada (Central)  
arn:aws:controltower:ca-central-1::control/MKMOEILVVSHM |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/MMCBTWVBBFM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/GWDDTZUMKSHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/BOWRAGMFVVRG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/ZUUHBYQIZGWS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/PDJFT MZONXVB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/LSBU VHESMXCJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/AYDX HNXYPDCX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control-2: MUVXUXJSLZGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>LDGXFHYHAKIXE</td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/NDCLXMQMSORR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South America</td>
<td>arn:aws:controltower:sa-east-1::control/BGLWKBRFNVTN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US West (N.</td>
<td>arn:aws:controltower:us-west-1::control/EROQW</td>
<td></td>
<td>California)</td>
</tr>
<tr>
<td></td>
<td>WAXAUCZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.Opensearch.1    | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 3.4  
• PCI DSS version 3.2.1 8.2.1 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/IHCAIGKUVWBB  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/HTPRMMEXYQLS  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/QOEVDDAFSXDN  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/DH TDOXDDWKDT |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/GNNUAYUHJXLT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ISPPUNAOKJTL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/ZPPHLWOMKJDA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/LJDAJTIIFMIBW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes t-2::cont rol/VRWSA VPPXKRH</td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/SSBM EZOMBXUD</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-sou th-1::control/UBZM NDYJFFGL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-nor theast-2: :control/ EUSIHTCWFMO W</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-nor theast-1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>YHHTXFNVSCLL</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/NRDKLFIUEHUR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America</td>
<td>arn:aws:controltower:sa-east-1::control/TFIVPOESOEHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td>US West (N. California)</td>
</tr>
<tr>
<td>• US West (N.</td>
<td>arn:aws:controltower:us-west-1::control/TWLXXVBLCQQZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.Opensearch.2    | • NIST 800-53 Rev 5 AC-21  
                    | • NIST 800-53 Rev 5 AC-3  
                    | • NIST 800-53 Rev 5 AC-3(7)  
                    | • NIST 800-53 Rev 5 AC-4  
                    | • NIST 800-53 Rev 5 AC-4(21)  
                    | • NIST 800-53 Rev 5 AC-6  
                    | • NIST 800-53 Rev 5 SC-7  
                    | • NIST 800-53 Rev 5 SC-7(11)  
                    | • NIST 800-53 Rev 5 SC-7(16)  
                    | • NIST 800-53 Rev 5 SC-7(20)  
                    | • NIST 800-53 Rev 5 SC-7(21)  
                    | • NIST 800-53 Rev 5 SC-7(3)  
                    | • NIST 800-53 Rev 5 SC-7(4)  
                    | • NIST 800-53 Rev 5 SC-7(9)  
                    | • Limit network access  | • US East (N. Virginia)  
                          |                        | arn:aws:controltower:us-east-1::control/GABXYPFSQLCM  | • US East (Ohio)  
                          |                        | arn:aws:controltower:us-east-2::control/NVSQFLJUXNEJ  | • US West (Oregon)  
                          |                        | arn:aws:controltower:us-west-2::control/QAPHAIOJQJGS  | • Canada (Central)  
<pre><code>                      |                        | arn:aws:controltower:ca-central-1::control/VHKUJNWUZHWF  |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/QWJLMXTGTTTY</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/PDIQINMIKBJU</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/ELGALPGEDDOI</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/UFAZXZNLUFJ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/FRPSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RYBKFBCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/EYYD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QBDGWXAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/HTJO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ZSBBWOS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control:NPHMQWTNQJA</td>
</tr>
</tbody>
</table>
|                    |           |                   | Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control:1

SH.Opensearch.2
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/GKQYHNVCZXUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/ro/LCPPNUYQSNQC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ro/MSRYQGHHWEWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ro/BFCZCVPISWLS</td>
</tr>
</tbody>
</table>
### SH.Opensearch.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.Opensearch.3</td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td>• Encrypt data in transit</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/DPIEOZVOOBXD</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-23</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-23(3)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/JXNDKUHIKUPE</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/MSRORYOIEHHF</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8(1)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-8(2)</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/VEHXNORMXQFE</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 4.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/QPRZHOWCOFOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/IMPWKHACFWKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/CBWBMTSYADVE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/XUAAEQGCCKZF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/DAUGSZZUKKCD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/NZTG0XILALHZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/LDDCEQCAMDTZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/GGXZVSAJJD0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/GGXZVSAJJJD0</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MLXUGQDBTLDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3:control/OZKIJCNPBYQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1:control/UUHIFUJCREJE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1:control/CIJEXNXYHHBI</td>
</tr>
</tbody>
</table>
## SH.Opensearch.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Opensearch.4    | • NIST 800-53 Rev 5 AC-2(4)  
                     |           | • Establish logging and monitoring  
                     |                     | • US East (N. Virginia)  
                     |           |                                         |  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 AC-4(26)  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 AC-6(9)  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 AU-10  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 AU-12  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 AU-2  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 AU-3  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 AU-6(3)  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 AU-6(4)  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 CA-7  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 SC-7(9)  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 SI-3(8)  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 SI-4(20)  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
                     |           |                                         |                  |
|                     | • NIST 800-53 Rev 5 SI-7(8)  
                     |           |                                         | • US East (N. Virginia)  
                     |           |arn:aws:controltower:us-east-1::control/GADHHKSJUALK  
                     |           |                                         | • US East (Ohio)  
                     |           |arn:aws:controltower:us-east-2::control/ONGPXFNPQB  
                     |           |                                         | • US West (Oregon)  
                     |           |arn:aws:controltower:us-west-2::control/IPGTQNCEVHE  
                     |           |                                         | • Canada (Central)  
                     |           |arn:aws:controltower:ca-central-1::control/MTRETS  
<p>| | | |
|           |                                         |                  |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/YGRKTWGZGYWP</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/VENRTMNHFVDY</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/SYCXPGVFVCCCL</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/SOQCBCPJHEEE</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1::control/SOQCBCPJHEEE</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.7</td>
<td></td>
<td></td>
<td>• North (Ohio) arn:aws:controltower:us-east-1:control/USMTFVQKBQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td>• North (Virginia) arn:aws:controltower:us-east-1:control/USMTFVQKBQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td>• North (Virginia) arn:aws:controltower:us-east-1:control/USMTFVQKBQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td>• North (Virginia) arn:aws:controltower:us-east-1:control/USMTFVQKBQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td>• South (Fremont) arn:aws:controltower:us-west-2:control/USMTFVQKBQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td>• South (Fremont) arn:aws:controltower:us-west-2:control/USMTFVQKBQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td>• South (Fremont) arn:aws:controltower:us-west-2:control/USMTFVQKBQ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>control/JPSTS</td>
<td></td>
<td></td>
<td>er:eu-wes:t-2:control/JPSTS</td>
</tr>
<tr>
<td>control/KGHP</td>
<td></td>
<td></td>
<td>MJBWTZNM</td>
</tr>
<tr>
<td>control/FBET</td>
<td></td>
<td></td>
<td>LNTPIXIH</td>
</tr>
<tr>
<td>control/EZAUSYQGYQLD</td>
<td></td>
<td></td>
<td>EZAUSYQGYQLD</td>
</tr>
</tbody>
</table>

- **Europe (Stockholm)**
  - arn:aws:controltower:eu-north-1:control/KGHP MJBWTZNM

- **Asia Pacific (Mumbai)**
  - arn:aws:controltower:ap-south-1:control/FBET LNTPIXIH

- **Asia Pacific (Seoul)**
  - arn:aws:controltower:ap-northeast-2:control/EZAUSYQGYQLD

- **Asia Pacific (Tokyo)**
  - arn:aws:controltower:ap-northeast-1:control/EZAUSYQGYQLD
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RPXLCPBVLWOD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/TTTMLSTLIIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/QOVSYKVMKSSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/LIHPYITEEFGH</td>
</tr>
</tbody>
</table>
### SH.Opensearch.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.Opensearch.5</td>
<td>• NIST 800-53 Rev 5 AC-2(4)  &lt;br&gt;• NIST 800-53 Rev 5 AC-4(26)  &lt;br&gt;• NIST 800-53 Rev 5 AC-6(9)  &lt;br&gt;• NIST 800-53 Rev 5 AU-10  &lt;br&gt;• NIST 800-53 Rev 5 AU-12  &lt;br&gt;• NIST 800-53 Rev 5 AU-2  &lt;br&gt;• NIST 800-53 Rev 5 AU-3  &lt;br&gt;• NIST 800-53 Rev 5 AU-6(3)  &lt;br&gt;• NIST 800-53 Rev 5 AU-6(4)  &lt;br&gt;• NIST 800-53 Rev 5 CA-7  &lt;br&gt;• NIST 800-53 Rev 5 SC-7(9)  &lt;br&gt;• NIST 800-53 Rev 5 SI-3(8)  &lt;br&gt;• NIST 800-53 Rev 5 SI-4(20)  &lt;br&gt;• NIST 800-53 Rev 5 SI-7(8)</td>
<td>• Establish logging and monitoring</td>
<td>• US East (N. Virginia)  &lt;br&gt;arn:aws:controltower:us-east-1::control/WAOBYBQZJHTA  &lt;br&gt;• US East (Ohio)  &lt;br&gt;arn:aws:controltower:us-east-2::control/ABHACZZEEKDD  &lt;br&gt;• US West (Oregon)  &lt;br&gt;arn:aws:controltower:us-west-2::control/YTIOEVUJXBVO  &lt;br&gt;• Canada (Central)  &lt;br&gt;arn:aws:controltower:ca-central-1::control/ZWUQUZVGRFGN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td>Asia Pacific (Sydney)</td>
<td>Arn:aws:controltower:ap-southeast-2:control/OZIJZGYJIAUK</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td>Asia Pacific (Singapore)</td>
<td>Arn:aws:controltower:ap-southeast-1:control/MXRREADODGVF</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td>Europe (Frankfurt)</td>
<td>Arn:aws:controltower:eu-central-1:control/XHUNQCUXSA</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td>Europe (Ireland)</td>
<td>Arn:aws:controltower:eu-west-1:控制/XUQONDDOGRUR</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td>Europe (London)</td>
<td>Arn:aws:controltower:</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-2:control/FSORD AEQFTUW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/MCFV GQDHUXSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/GZUM MDQRRYGL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control::HMQDJFSYXHRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SH Opensearch.5
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>

- **Europe (Paris)**
  - arn:aws:controltower:eu-west-3::control/WYXUL
  - LGHGHO

- **South America (São Paulo)**
  - arn:aws:controltower:sa-east-1::control/RRBSF
  - POEGJLV

- **US West (N. California)**
  - arn:aws:controltower:us-west-1::control/UJPMW
  - YJTEGIU
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Opensearch.6    | • NIST 800-53 Rev 5 CP-10                         | • Improve availability | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/UHLKIWWGXHHO |
|                    | • NIST 800-53 Rev 5 CP-6(2)                        |                  | • **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/INAHZRREYHKS |
|                    | • NIST 800-53 Rev 5 SC-36                          |                  | • **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/GRZJBENTFMIR |
|                    | • NIST 800-53 Rev 5 SC-5(2)                        |                  | • **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/UFNJUYUNHPU0 |
<p>|                    | • NIST 800-53 Rev 5 SI-13(5)                       |                  |                                                        |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-souteast-2::control/FTZIOOVBEHSU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-souteast-1::control/THCUKEEVGVRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/IQTWVHRNNLNT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/HXIYGAHXBPFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/KPYLK EFVFLLG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/NBJRUMLUQPZK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/AHZDAVZEIKPI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/NALYWWTOTQSQM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/NALYWWTOTQSQM</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BRKBMKFMLHEQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.Opensearch.7    | • NIST 800-53 Rev 5 AC-2(1)  
                     • NIST 800-53 Rev 5 AC-3  
                     • NIST 800-53 Rev 5 AC-3(15)  
                     • NIST 800-53 Rev 5 AC-3(7)  
                     • NIST 800-53 Rev 5 AC-5  
                     • NIST 800-53 Rev 5 AC-6  
                     • PCI DSS version 3.2.1 7.1.1  
                     • PCI DSS version 3.2.1 7.2.1  
                     • PCI DSS version 3.2.1 7.2.2 | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/TMJKC000PZDS  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/HYJEBTQLGRWB  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/XJACAJPWJYEG  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/CDTQYPILPYGQ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/EGTEXCKXTWYU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/YWDFKJTPFDGL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/HB0VIWODSIIQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/QIUXDLURBXQH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control/SQMDH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>KIDEFBFB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:northern-1:control/UBSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PWEOEVHB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap:south-east-2:control/JVLECKNIHJFT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap:northeast-2:control-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap:northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QGKGUEKWKELB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-wes-t-3:control/QHKUXLTQG0PU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas-t-1:control/KJJGFQDNIUG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes-t-1:control/KAYPQKGVRYEC</td>
</tr>
</tbody>
</table>
## SH.Opensearch.8

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Opensearch.8    | • NIST 800-53 Rev 5 AC-17(2)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 IA-5(1)  
• NIST 800-53 Rev 5 SC-12(3)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-23  
• NIST 800-53 Rev 5 SC-23(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-8  
• NIST 800-53 Rev 5 SC-8(1)  
• NIST 800-53 Rev 5 SC-8(2)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 2.3  
• PCI DSS version 3.2.1 4.1 | • Encrypt data in transit | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/OEGCJFDHPGEM  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/MIUYZGCZSCNK  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/ZYMOYFTGCZOO  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/CLTBPMNSISNR |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/MQGZXOCEDKKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/YQCKQPENAIJQT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/QB MJTLWYWCPB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/CCKMA IIZNSPH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/UBUBN0TQLYHV</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1::control/HUPEGIPAJUZG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southeast-1::control/YRWIMCSZLLAG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2::control/ELQLURSWUQRB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1::control/YRWIMCSZLLAG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/SSAMJDSXKUQB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Europe (Paris)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3:control/EBZSA</td>
</tr>
<tr>
<td><strong>South America (São Paulo)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1:control/LYIOTWAGDXPY</td>
</tr>
<tr>
<td><strong>US West (N. California)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1:control/HETKZGLMYTUT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.RDS.1           | • NIST 800-53 Rev 5 AC-2(1)  
|                    | • NIST 800-53 Rev 5 AC-21  
|                    | • NIST 800-53 Rev 5 AC-3  
|                    | • NIST 800-53 Rev 5 AC-3(15)  
|                    | • NIST 800-53 Rev 5 AC-3(7)  
|                    | • NIST 800-53 Rev 5 AC-4  
|                    | • NIST 800-53 Rev 5 AC-4(21)  
|                    | • NIST 800-53 Rev 5 AC-6  
|                    | • NIST 800-53 Rev 5 CA-7  
|                    | • NIST 800-53 Rev 5 CA-9(1)  
|                    | • NIST 800-53 Rev 5 CM-2  
|                    | • NIST 800-53 Rev 5 CM-2(2)  
|                    | • NIST 800-53 Rev 5 CP-10  
|                    | • NIST 800-53 Rev 5 CP-6  | • Enforce least privilege  
|                    |                        | • Protect data integrity  | • US East (N. Virginia)  
|                    |                        |                                | arn:aws:controltower:us-east-1::control/UWMYP VTQGECU  
|                    |                        |                                | • US East (Ohio)  
|                    |                        |                                | arn:aws:controltower:us-east-2::control/OYYKDK WBCQTYU  
|                    |                        |                                | • US West (Oregon)  
|                    |                        |                                | arn:aws:controltower:us-west-2::control/CAGKP KAGDCTC  
|                    |                        |                                | • Canada (Central)  
<p>|                    |                        |                                | arn:aws:controltower:ca-central-1::control/NZ XCAQOXCCUB |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 CP-6(1)</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/KMPUUHKSUHBG</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/QZXCSYNMQWZ</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-9</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/NCZTIRGKTDTQ</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/GWPDEHULWHVB</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SI-2</td>
<td></td>
<td>er:eu-wests::control/ELQQDOSZOPYE</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SI-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SI-2(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5</td>
<td>SI-2(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 1.3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 1.3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 1.3.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 10.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 11.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 2.2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version</td>
<td>3.2.1 2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-north-1:control/ARNR EVDOJLHJ</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-south-1:control/EHMN WTQNUQFX</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-2:control/JZXYUXYDVS</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-northeast-1:control/JZXYUXYDVET</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.1</td>
<td></td>
<td></td>
<td>:control/TOXGHRQ00OZW</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 6.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Europe (Paris)**
  - arn:aws:controltower:eu-west-1::control/BJULHBJYPSZ

- **South America (São Paulo)**
  - arn:aws:controltower:sa-east-1::control/DRLOIMLUYCCX

- **US West (N. California)**
  - arn:aws:controltower:us-west-1::control/EFSULLGMDI
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.RDS.10          | - NIST 800-53 Rev 5 AC-2(1)  
                   | - NIST 800-53 Rev 5 AC-3  
                   | - NIST 800-53 Rev 5 AC-3(15)  
                   | - NIST 800-53 Rev 5 AC-3(7)  
                   | - NIST 800-53 Rev 5 AC-6  
                   | - PCI DSS version 3.2.1 7.1.1  
                   | - PCI DSS version 3.2.1 7.2.1  
                   | - PCI DSS version 3.2.1 7.2.2  
                   | - PCI DSS version 3.2.1 8.7  
|                    |           | Use strong authentication | - US East (N. Virginia)  
                   |                    |                               | arn:aws:controltower:us-east-1::control/QKWGQNGCDPYPW  
                   |                    |                               | - US East (Ohio)  
                   |                    |                               | arn:aws:controltower:us-east-2::control/JRCVWZHHQKOW  
                   |                    |                               | - US West (Oregon)  
                   |                    |                               | arn:aws:controltower:us-west-2::control/EFAPZPONOBQN  
                   |                    |                               | - Canada (Central)  
<pre><code>               |                    |                               | arn:aws:controltower:ca-central-1::control/PRHACJRAZPNL |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/SMAVVT0YNJTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/JUHUNMEAVSXZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/SX/LQIDOEFSRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/YPEON/MSLBPTL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/BLXPG HVCWRQD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/BTPG JCTLRYLN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/RYHN WNNMLODQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-north-east-2:control/MOLCFSPBOQVJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/MOLCFSPBOQVJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HCCCLBUSXOTA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/DKTIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AZFWVQA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ZXYUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GHNGIGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/IOEHO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HYBSJCL</td>
</tr>
</tbody>
</table>
## SH.RDS.11

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.RDS.11          | • NIST 800-53 Rev 5 CP-10                                                 | • Improve resiliency | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/IFMREHTYREKZ |
|                    | • NIST 800-53 Rev 5 CP-6                                                   |                   | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/JXWBLIPXTXFM |
|                    | • NIST 800-53 Rev 5 CP-6(1)                                                |                   | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/EXXRI SQZELSP |
|                    | • NIST 800-53 Rev 5 CP-9                                                   |                   | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/TP WBDXCLLFXK |
<p>|                    | • NIST 800-53 Rev 5 SC-5(2)                                                |                   |                                   |
|                    | • NIST 800-53 Rev 5 SI-12                                                  |                   |                                   |
|                    | • NIST 800-53 Rev 5 SI-13(5)                                               |                   |                                   |
|                    | • PCI DSS version 3.2.1 10.7                                                |                   |                                   |
|                    | • PCI DSS version 3.2.1 3.1                                                |                   |                                   |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/PVJEIOWFEXGW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/JKXCQSHKOFWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/EXPWZLGXOBNE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/NKIMJVTTDZKZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-wes:control::PUGHZ:STXSXHE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor:control::ZHUF:JUOHQHAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south:control::YITL:GYAIRUBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast:control::WNGCEPODSWMA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast:control::WNGCEPODSWMA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UEYPQELHZGCQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3::control/NOXEGPPLREHN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1::control/MUBQTIMSKSHFX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1::control/PJJOUURHUEOL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.RDS.12          | • NIST 800-53 Rev 5 AC-2(1)  
                     • NIST 800-53 Rev 5 AC-3  
                     • NIST 800-53 Rev 5 AC-3(15)  
                     • NIST 800-53 Rev 5 AC-3(7)  
                     • NIST 800-53 Rev 5 AC-6  
                     • PCI DSS version 3.2.1 7.1.1  
                     • PCI DSS version 3.2.1 7.2.1  
                     • PCI DSS version 3.2.1 7.2.2  
                     • PCI DSS version 3.2.1 8.7  
|                    | Use strong authentication | • US East (N. Virginia)  
                     arn:aws:controltower:us-east-1::control/SMFUECIOXWRX  
                     • US East (Ohio)  
                     arn:aws:controltower:us-east-2::control/XPQKKOXJFOJU  
                     • US West (Oregon)  
                     arn:aws:controltower:us-west-2::control/HGQGAKCYLYSU  
                     • Canada (Central)  
                     arn:aws:controltower:ca-central-1::control/WLJSEVCPUVGT |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/YC/YHJVTHDNPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/YC/YHJVTHDNPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1:control/YC/YHJVTHDNPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/YC/YHJVTHDNPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1:control/YC/YHJVTHDNPX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/KWPJS LPTKZRB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltow er:eu-nor th-1:control/VGUC UQAUXAQZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltow er:ap-south-1:control/YDFQ ASDRCIIK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltow er:ap-northeast-2:control/TUCHTHPPAUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltow er:ap-northeast-1:control/TUCHTHPPAUT</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/APLEYBWMJVR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/VHGKHD TutEGUU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/HVTKBGSPIXNI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/BTZHGHNRPFLP</td>
</tr>
</tbody>
</table>
## SH.RDS.13

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.RDS.13          | • NIST 800-53 Rev 5 SI-2  
• NIST 800-53 Rev 5 SI-2(2)  
• NIST 800-53 Rev 5 SI-2(4)  
• NIST 800-53 Rev 5 SI-2(5)  
• PCI DSS version 3.2.1 6.2 | • Manage vulnerabilities | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/GUYPLHFGVYSR  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/SVRYURDPWZDY  
• **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/WLWAWYKRSUMI  
• **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/PTCFMAVPZJNJ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/SFKATYNUSZRY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/PJLXYFZCQDDF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/GCFQCJMRPAAW0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1:control/XIRVQKZQFELN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-2:control/YEQBF MEZZYKY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-eu-nor th-1:control/YTDR SPNPDUDG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/SJKO VPHPKCSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/YHGQSNNFHDVQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control SH.RDS.13 5171</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/XIGVOEMJKAAN</td>
</tr>
<tr>
<td>• <strong>Europe (Paris)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:t-3:control/QMXTRQBYGTDF</td>
</tr>
<tr>
<td>• <strong>South America (São Paulo)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:t-1:control/UBPMMEGVOIKQ</td>
</tr>
<tr>
<td>• <strong>US West (N. California)</strong></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:t-1:control/BOPQOMHKGHTF</td>
</tr>
</tbody>
</table>
## SH.RDS.15

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.RDS.15</td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Improve availability</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/WEBMACIXPMUV</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-36</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/OXZGGJJGHSWO</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/IJVHZTDIWOAW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/VUXWHQTMDUIL</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ CXRHCSGCTDUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/XVSMSTPMPWPO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/CV MCODCFPUMR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/QBPHBORNXALB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/OGMFCZEGTRHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/KJTOOKWQYWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/ALNC DIFDIXFY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/SEHEGBVDGFYC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/VBNKKWDFNAZW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/QBRSRTJBPWBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/AXSXM0ZSG0EX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/RLSNO0OCARNMP</td>
</tr>
</tbody>
</table>
### SH.RDS.17

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.RDS.17</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Protect configurations</td>
<td>• <strong>US East (N. Virginia)</strong>&lt;br&gt;arn:aws:controltower:us-east-1::control/DTZXJLHKFLEJ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US East (Ohio)</strong>&lt;br&gt;arn:aws:controltower:us-east-2::control/TUGTHWRGHGVM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (Oregon)</strong>&lt;br&gt;arn:aws:controltower:us-west-2::control/THIMEGDOQLQT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Canada (Central)</strong>&lt;br&gt;arn:aws:controltower:ca-central-1::control/AU G0GJCNNLCH</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/SRFNCNDSXZNT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/SRQHDGHEOMQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/DJZAPEFIHNFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/BNXHULOVVIP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/ZCZUY DTUHIOI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/FWIV EWQQXNHK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/YVFD AUWENFAA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/EPTKMHACQELH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/ DVLDWXJCOMXM</td>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/BZZSMKNBILCF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/YALXEHDSNCTD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-1::control/SIUCVIXCSYVX</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.RDS.18          | • NIST 800-53 Rev 5 AC-4 | • Limit network access | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/PXYEQHPGSBAU  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/JYLXQUQOFAHZ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/QFDDMLBXZFMDB  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/WGEILDILYYVXLI  
• PCI DSS version 3.2.1 1.2.1  
• PCI DSS version 3.2.1 1.3  
• PCI DSS version 3.2.1 1.3.1  
• PCI DSS version 3.2.1 1.3.2  
• PCI DSS version 3.2.1 1.3.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/RBYPDKTCHCVN</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/FLLXFLHIFSMQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/BP CAMESMWAHB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/PSTYG KOBDUTG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1::control/PSTYG KOBDUTG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/ZZHOCZFFHRAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/EJNZYMOZMYKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/WUNIHEUEMUJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/NNRQJBASRGFM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/SH.RDS.185183</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/JSNSKZQFYVBT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/SWEQGXNIMHXT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/HYSDYMKJVUVK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/PTTJFTDKIAFZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| SH.RDS.19          | • NIST 800-53 Rev 5 CA-7  
                   |           | • Prepare for  
                   | • US East (N.  
                   |           | incident response  
                   | Virginia)  
                   |           | arn:aws:controltower:us-east-1::control/NXPQTYLKAEZFF  
                   |           | • US East (Ohio)  
                   |           | arn:aws:controltower:us-east-2::control/MHCRBUUUNLAM  
                   |           | • US West (Oregon)  
                   |           | arn:aws:controltower:us-west-2::control/LRBSFHOKMEYK  
                   |           | • Canada (Central)  
<pre><code>               |           | arn:aws:controltower:ca-central-1::control/DUYBROXNRZJ |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/FDBSHSSUIULV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/WYTBHUZZBIKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/SDCINGKZSOQU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/FFWGQTMRZLCX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/WJYRS JUKCXTX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/LAZJ DBKFEJMA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/FNYI MXTFODXS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/JBYTKROMQCVX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/SH.RDS.195187</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CTNWHYDIRSVEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/PWEQIFVKNZUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/SODGISQYHNV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US West (N. California)</td>
<td>arn:aws:controltower:us-west-1::control/JHQDLXADFWXA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.RDS.2           | • NIST 800-53 Rev 5 AC-21  | • Limit network access | • US East (N. Virginia)  
ar:n:aws:controltow er:us-east-1::contro l/WDBVVIVSLRNF |
|                    | • NIST 800-53 Rev 5 AC-3   |                   | • US East (Ohio)  
ar:n:aws:contro l:us-east-2::contro l/JOYEWALSGIFL |
|                    | • NIST 800-53 Rev 5 AC-3(7) |                   | • US West (Oregon)  
ar:n:aws:contro l:us-west-2::contro l/MZHXJE NYHYPM |
|                    | • NIST 800-53 Rev 5 AC-4   |                   | • Canada (Central)  
ar:n:aws:contro l:ca-central-1::contro l/LVTHEOBWSHXI |
<p>|                    | • NIST 800-53 Rev 5 AC-4(21)|                   |                     |
|                    | • NIST 800-53 Rev 5 AC-6   |                   |                     |
|                    | • NIST 800-53 Rev 5 CA-7   |                   |                     |
|                    | • NIST 800-53 Rev 5 CA-9(1)|                   |                     |
|                    | • NIST 800-53 Rev 5 CM-2   |                   |                     |
|                    | • NIST 800-53 Rev 5 CM-3(6)|                   |                     |
|                    | • NIST 800-53 Rev 5 SC-13  |                   |                     |
|                    | • NIST 800-53 Rev 5 SC-28  |                   |                     |
|                    | • NIST 800-53 Rev 5 SC-28(1)|                  |                     |
|                    | • NIST 800-53 Rev 5 SC-7   |                   |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/IWPFNXTXZADU</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/FXNNEWSUUKUT</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/MONNNJZXUZJV</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/ZNRDFQQKVSBM</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/LSLIBAUCMRGZD</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 11.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/LRLYXEVQGYTM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1:control/QPXOSS0OJYDOD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/LVCJBGIBMVJAD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/RYZQHJVDDKSU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong> arn:aws:controltower:eu-west-3::control/WLPKIQHXVSR</td>
</tr>
</tbody>
</table>
## SH.RDS.20

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.RDS.20</td>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td>• Prepare for incident response</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/BZKHLGWSEYGS</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/QKBXURIFEDNR</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 11.5</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/EZKYVDMHEXTT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/00DDUWOHHNMJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/SIZRZVALISEG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/QMPWTHDYXPNF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/MGSWFNHYEYW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/00ZTVTPLFUZE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:euro-wester-2:control/SCDHE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PMDRZYD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/YMSJKTCPZVLQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/JWYATNKBGECV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/OAIMBCJMFKNH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/ZWIFHLDJHCYK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>SH.RDS.21</td>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td>• Prepare for incident response</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/LSOCQKOMTNUV</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 11.5</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/HXSMRIUXHEQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/VNVOSKGSBKYM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/JUUCAVNVKIFZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/BEAJMSHPLZAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/SFJABILZRZSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/BDSWAPWAEE00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/FKEYGPXPKFLG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>er:eu-wes t-2::cont rol/IREBV NNCJFQN</td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::cont rol/XZAJ RQOSAIVS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-sou th-1::cont rol/MUDG OLDWJQFJ</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-nor theast-2::control/GZCLBNPOKRNZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-nor theast-1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/YXJRNYQXFBBJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/UEMPPORPOEXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/ONKVQCAHDMG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/GTXGBGCVGHQI</td>
</tr>
</tbody>
</table>
## SH.RDS.22

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.RDS.22</td>
<td>• NIST 800-53 Rev 5 CA-7&lt;br&gt;• NIST 800-53 Rev 5 SI-2&lt;br&gt;• PCI DSS version 3.2.1 11.5</td>
<td>• Prepare for incident response</td>
<td>• <strong>US East (N. Virginia)</strong>&lt;br&gt;arn:aws:controltower:us-east-1::control/APIPOBXROAY&lt;br&gt;• <strong>US East (Ohio)</strong>&lt;br&gt;arn:aws:controltower:us-east-2::control/XNOPTYHHQXYF&lt;br&gt;• <strong>US West (Oregon)</strong>&lt;br&gt;arn:aws:controltower:us-west-2::control/YNHFAJNIYTD&lt;br&gt;• <strong>Canada (Central)</strong>&lt;br&gt;arn:aws:controltower:ca-central-1::control/ZGGHJOYXRWY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/HGUANBQWZZZT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/EQAAWXJPTMKT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/NOQNKAMBARQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/FHEENQFCWVOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/USADZKONGEWL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/WCCG GPOESKUN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1:control/QUVL HKDDEGEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/XGNLIROGTVPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/SH.RDS.225203</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EXEHMGV0GPEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/MEMSF TMAYJCK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/ZIKCB MBKOYQG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/QMZED TMMIZLU</td>
</tr>
</tbody>
</table>
## SH.RDS.23

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.RDS.23</td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/YMXSTCEYXBPV</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/BMHOKULQTGAT</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/TJALNCJQYRFH</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(5)</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/WSFKIXFVIRY</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ZRQKSDQFNGQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/QXHTVIIKMWTW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/VXAKLAUIEPMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/RASOHQDBMGMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/PLKDXQODKBCM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-northeast-1::control/IVCTUYYHNHZKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southwest-1::control/FAFQHCERANWF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/VIWCZSTJLLWW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/VIWCZSTJLLWW</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HIWFHIFSZSKM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wests-3:control/XNDQTSALSLX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/WGAKCUZZVTHP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/YMDPRQFAXKCO</td>
</tr>
</tbody>
</table>
## SH.RDS.25

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.RDS.25</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Protect configurations</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1:control/BBSLGPRKDCNJ</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.1</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2:control/RLYGPANIDPZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2:control/QCWMEMJPWTVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1:control/HKYZMPYFMAFO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/ BGPIYJTQZCFXL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/ NDCFQRXZYLYGR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/GR OVRXZIBJCL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/MZHTG UBEWDXJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-2:control/RVSFM KX00BZS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1:control/ONRG ZMZOPBUF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/AWJUNDMLTRRD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control2:YFLHZPIZNNYT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/GFQGKQGMTLQT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/QBJWHTMNMSRR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/PWFHIJDDFBFT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/XIDGGFKVQTBY</td>
</tr>
</tbody>
</table>
## SH.RDS.27

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.RDS.27          | • NIST 800-53 Rev 5 CA-9(1)  
                     • NIST 800-53 Rev 5 CM-3(6)  
                     • NIST 800-53 Rev 5 SC-13  
                     • NIST 800-53 Rev 5 SC-28  
                     • NIST 800-53 Rev 5 SC-28(1)  
                     • NIST 800-53 Rev 5 SC-7(10)  
                     • NIST 800-53 Rev 5 SI-7(6)  
                     • PCI DSS version 3.2.1 3.4  
                     • PCI DSS version 3.2.1 8.2.1 | • Encrypt data at rest |  
|                    |           |                  | • US East (N. Virginia)  
                     arn:aws:controltower:us-east-1:control/DROQPQLJBTES  
                     • US East (Ohio)  
                     arn:aws:controltower:us-east-2:control/YOTEPZWwVTA  
                     • US West (Oregon)  
                     arn:aws:controltower:us-west-2:control/AEXJPTLILJTV  
                     • Canada (Central)  
                     arn:aws:controltower:ca-central-1:control/HYHWKJXEPHPS |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/YIQWYGANUPYO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/UEUHZXQNABCQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/YHFDAYZPEVWO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/SMQWYFRNIEJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/TZIPA EKMFTMH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/SHKE UJZRGZDP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1::control/VLLL LYEMUGOC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control:ONFIOHPFSGHJK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control/SH.RDS.275215</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DRFBXTXBNCRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/DJZYDUIVJLQI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/WAAVLKURPRRQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/WCSGBVJYKJKB</td>
</tr>
</tbody>
</table>
### SH.RDS.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.RDS.3           | • CIS AWS Benchmark 1.4 2.3.1  
                    | • NIST 800-53 Rev 5 CA-9(1)  
                    | • NIST 800-53 Rev 5 CM-3(6)  
                    | • NIST 800-53 Rev 5 SC-13  
                    | • NIST 800-53 Rev 5 SC-28  
                    | • NIST 800-53 Rev 5 SC-28(1)  
                    | • NIST 800-53 Rev 5 SC-7(10)  
                    | • NIST 800-53 Rev 5 SI-7(6)  
                    | • PCI DSS version 3.2.1 3.4  
                    | • PCI DSS version 3.2.1 8.2.1  | • Encrypt data at rest  
                    |           | | • US East (N. Virginia)  
                    |           | | arn:aws:controltower:us-east-1:control/VGWJZHZSYIBM  
                    |           | | • US East (Ohio)  
                    |           | | arn:aws:controltower:us-east-2:control/VCGAQSJVXRX  
                    |           | | • US West (Oregon)  
                    |           | | arn:aws:controltower:us-west-2:control/NMQXECEAQCBC  
                    |           | | • Canada (Central)  
<pre><code>                |           | | arn:aws:controltower:ca-central-1:control/KAZMYJAUZYSY |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/OKWMNXYZRUVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/DUPIMTBZJBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/KNPNIWDEVEJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/HBTSVIZWIAQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-annex-1::control/SH.RDS.35218</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wests-2::control/ZQCGV RDNLZEK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/QGGS RCNFPBON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/QLBP HXRQYFTE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/VMJOVSBQHNLI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SH.RDS.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Europe (Paris)**
  - arn:aws:controltower:eu-west-3::control/ABSIYZAIAWCN

- **South America (São Paulo)**
  - arn:aws:controltower:sa-east-1::control/WWDYZRWIDTXW

- **US West (N. California)**
  - arn:aws:controltower:us-west-1::control/TGJXCMCDKMXP
## SH.RDS.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.RDS.4           | • NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6)  
• NIST 800-53 Rev 5 SC-13  
• NIST 800-53 Rev 5 SC-28  
• NIST 800-53 Rev 5 SC-28(1)  
• NIST 800-53 Rev 5 SC-7(10)  
• NIST 800-53 Rev 5 SI-7(6)  
• PCI DSS version 3.2.1 3.4  
• PCI DSS version 3.2.1 8.2.1 | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1:control/BZBLCONTBAMD  
• US East (Ohio)  
arn:aws:controltower:us-east-2:control/JFTFUKHRKVSA  
• US West (Oregon)  
arn:aws:controltower:us-west-2:control/OGAIZAJBSGBT  
• Canada (Central)  
arn:aws:controltower:ca-central-1:control/VXUOLNFZHRXA |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/UOCQAVOKOBTP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/SWWDMMPJTVUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/KZAQFIPMORTE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/LREEKQPJSYDJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.RDS.4
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/CZGUU SLYJXEQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/BVVS FCJBDKUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-sout th-1::control/DACI CEFQAULS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-nor theast-2::control/TXZGWJJTMYAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-nor theast-1::control/TXZGWJJTMYAS</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/CLRBHZMKGNHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris) arn:aws:controltower:eu-wes-t-3:control/rol/BKZVWTBCYGUF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo) arn:aws:controltower:sa-eas-t-1:control/rol/RZHJRUQRPWRV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California) arn:aws:controltower:us-wes-t-1:control/rol/NOZHCDEDTOTS</td>
</tr>
</tbody>
</table>
## SH.RDS.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.RDS.5           | • NIST 800-53 Rev 5 CP-10  | • Improve availability | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/WAIDV EUJUPWI  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/NTFDQ TWLGZWO  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/WQRKC NCGXMEZ  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/XM POBIWVBCBI  
• NIST 800-53 Rev 5 CP-6(2)  
• NIST 800-53 Rev 5 SC-36  
• NIST 800-53 Rev 5 SC-5(2)  
• NIST 800-53 Rev 5 SI-13(5)  


<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/IRSIBRZRNPNGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/NNYNUMCTQZCZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/RDRYYIDEWYNY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/ABTYU CPXKSGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH RDS.5
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-wes:control:HKTFG:MWLCXVS</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:eu-north-1:control/YREO:QGNQKBLJ</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-south-1:control/GPURF:SACIRWXI</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-northeast-2:control/QSPRBKYKNWKM</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ap-northeast-1:control/QSPRBKYKNWKM</code></td>
</tr>
</tbody>
</table>

- **Europe (Stockholm)**
- **Asia Pacific (Mumbai)**
- **Asia Pacific (Seoul)**
- **Asia Pacific (Tokyo)**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>:control/OTHPZRZHRYNM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Europe (Paris)</strong></td>
<td>arn:aws:controltower:eu-west-3::control/SEMODNJPIZDI</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>South America (São Paulo)</strong></td>
<td>arn:aws:controltower:sa-east-1::control/HDDRWBVHAVWK</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>US West (N. California)</strong></td>
<td>arn:aws:controltower:us-west-1::control/IXXVGFVGMRZK</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SH.RDS.6

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.RDS.6            | • NIST 800-53 Rev 5 CA-7  
                      • NIST 800-53 Rev 5 SI-2 | • Establish logging and monitoring | • **US East (N. Virginia)**  
                           arn:aws:controltower:us-east-1::control/CQFNSAHGKXYR  
• **US East (Ohio)**  
                           arn:aws:controltower:us-east-2::control/QJCUZIBGHFIW  
• **US West (Oregon)**  
                           arn:aws:controltower:us-west-2::control/EYAIAJPSQRWR  
• **Canada (Central)**  
                           arn:aws:controltower:ca-central-1::control/DKSRZCJNBFHQ |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2::control/LJQFIHVOJEWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1::control/WGVCYIMZTDAK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/JKBKECQARADY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/OEPIOAXLVVJQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/FUVWS PBRWRMJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/OITU KLCXALQI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-th-1:control/VHPW TYRBFSMR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control:MEYNQQLIBFVH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:</td>
</tr>
</tbody>
</table>

SH.RDS.6  5231
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BKCRQHWTOIDQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/XOMAA MMDKJSN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-1::control/KLAQL DQDNQCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/EAZJC JVTNNTK</td>
</tr>
</tbody>
</table>
## SH.RDS.8

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.RDS.8           | • NIST 800-53 Rev 5 CA-9(1)                     | • Improve availability                                 | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/OHXOGCEUBHHF   |
|                    | • NIST 800-53 Rev 5 CM-2                        |                                                        | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/CCQXNXARGJAR   |
|                    | • NIST 800-53 Rev 5 CM-2(2)                     |                                                        | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/EZGQFHTMBAWO   |
|                    | • NIST 800-53 Rev 5 CM-3                        |                                                        | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/WFLIUEPSIAYX  |
<p>|                    | • NIST 800-53 Rev 5 SC-5(2)                     |                                                        |                                                        |
|                    | • PCI DSS version 3.2.1 2.2                     |                                                        |                                                        |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/CDKCDVDPAZJE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/GINLEIXHNSYL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/SQHTJKLMQJGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/XBIZWFFXCCON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.RDS.8 5234
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/VQMCVFXHFAQQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/NMWOUPNACHOL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1:control/LWZRQWERBHQG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/EWKOXI0SNJGCZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

<p>| SH.RDS.8 | 5235 |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KVSVIPSZIYPAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/EGERD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MSRMFYK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/BQHOI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AHINFUY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/EPAIK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XSPXSCA</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifier, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| SH.RDS.9           | • NIST 800-53 Rev 5 AC-2(4)  
                     • NIST 800-53 Rev 5 AC-4(26)  
                     • NIST 800-53 Rev 5 AC-6(9)  
                     • NIST 800-53 Rev 5 AU-10  
                     • NIST 800-53 Rev 5 AU-12  
                     • NIST 800-53 Rev 5 AU-2  
                     • NIST 800-53 Rev 5 AU-3  
                     • NIST 800-53 Rev 5 AU-6(3)  
                     • NIST 800-53 Rev 5 AU-6(4)  
                     • NIST 800-53 Rev 5 CA-7  
                     • NIST 800-53 Rev 5 SC-7(10)  
                     • NIST 800-53 Rev 5 SC-7(9)  
                     • NIST 800-53 Rev 5 SI-3(8)  
                     • NIST 800-53 Rev 5 SI-4(20) | • Establish logging and monitoring | • US East (N. Virginia)
                     arn:aws:controltower:us-east-1::control/BCVVFPDGVISN
                     • US East (Ohio)
                     arn:aws:controltower:us-east-2::control/OTXQBSYGPGYU
                     • US West (Oregon)
                     arn:aws:controltower:us-west-2::control/DBSDVNSHWIOG
                     • Canada (Central)
                     arn:aws:controltower:ca-central-1::control/RUYUXCWVBRCAD
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/FPPDNGIQPZQT</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/TBIMMPTMBJTL</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/GXZYLMFPQWDW</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/IIFLSTVTRDZG</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/IIFLSTVTRDZG</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/REJGKLYPHVDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/KMLDOBVZKKCT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/KAQQDXQFJYRU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/PSHCDLXAFPIZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
</tbody>
</table>

**Control identifier**
- SH.RDS.9

**User Guide**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/EIZJBSDXPFGK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west:3:control/HNXTEFHVWVUV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east:1:control/NDKTPFKNJXF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west:1:control/IXAUMTJOJTU</td>
</tr>
</tbody>
</table>

**SH.RDS.9 5240**
## SH.Redshift.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.Redshift.1</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/QGVYRDNRLLPZ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/VRMIAJEHXVEF</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/KHOSQGUZDTNH</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/RSFNTTDNSXM</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/WVIYUKDGDFONY</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/AWCJAMQENDQO</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/IYGOKELEWJWMB</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/CCXNECVPVRHL</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/RHXEM VQOGMNY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockhol m) arn:aws:cont roltower er:eu-nor th-1::cont rol/LZKI QTREDTFY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:cont roltower er:ap-sou th-1::cont rol/WXXR GRFXMKHZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:cont roltower er:ap-nor theast-2::control/KUKRAWPCWPWD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:cont roltower er:ap-nor theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/AYTBPCVDXBQV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/XJVAUJAVHWDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-1::control/YQJNEMQSMPCG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/WUADYLMPFVGP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
</tbody>
</table>
| SH.Redshift.10    | • NIST 800-53 Rev 5 CA-9(1) | • Encrypt data at rest | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/NMNBPYCIYIAW |
|                   | • NIST 800-53 Rev 5 CM-3(6) |                   | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/FGDKUQ0JDCQG |
|                   | • NIST 800-53 Rev 5 SC-13   |                   | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/CLQQQXAYJAFH |
|                   | • NIST 800-53 Rev 5 SC-28   |                   | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/SFTASJFBQOZK |
<p>|                   | • NIST 800-53 Rev 5 SC-28(1)|                   |                                    |
|                   | • NIST 800-53 Rev 5 SI-7(6) |                   |                                    |
|                   | • PCI DSS version 3.2.1 3.4 |                   |                                    |
|                   | • PCI DSS version 3.2.1 3.5.3|                   |                                    |
|                   | • PCI DSS version 3.2.1 8.2.1|                   |                                    |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/:control/LQIBXYSZTOTD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/:control/FEOOFZLBVNOD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/AP/ZBNDLSBEGY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/TZZYE/MVXIONE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/ZVKXZ TUNFLSZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/LUUI EVUKWMHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/WJWR WAEUMDCO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control-2: HLTTIBMTADKA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:</td>
</tr>
</tbody>
</table>

SH.Redshift.10 5247
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LYYELPWNRVLL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3:control/TSPTA-YOGXSED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1:control/KAABM-IDGCLBK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1:control/ENSMM-XOHZMQJ</td>
</tr>
</tbody>
</table>
# SH.Redshift.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Redshift.2      |           | Encrypt data in transit | US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/GJLYVQTNPXNP  
US East (Ohio)  
arn:aws:controltower:us-east-2::control/QZALUPNZSSAE  
US West (Oregon)  
arn:aws:controltower:us-west-2::control/YHXWAUSZWWSC  
Canada (Central)  
arn:aws:controltower:ca-central-1::control/YMGGCUBQWEZW |
<p>|                    | NIST 800-53 Rev 5 AC-4 |                   | [ ] |
|                    | NIST 800-53 Rev 5 SC-13 |                   | [ ] |
|                    | NIST 800-53 Rev 5 SC-23 |                   | [ ] |
|                    | NIST 800-53 Rev 5 SC-23(3) |                   | [ ] |
|                    | NIST 800-53 Rev 5 SC-7(4) |                   | [ ] |
|                    | NIST 800-53 Rev 5 SC-8 |                   | [ ] |
|                    | NIST 800-53 Rev 5 SC-8(1) |                   | [ ] |
|                    | NIST 800-53 Rev 5 SC-8(2) |                   | [ ] |
|                    | PCI DSS version 3.2.1 2.3 |                   | [ ] |
|                    | PCI DSS version 3.2.1 4.1 |                   | [ ] |
|                    | PCI DSS version 3.2.1 8.2.1 |                   | [ ] |
|                    | PCI DSS version 3.2.1 8.2.1 |                   | [ ] |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ORJWWXAPJACW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/JBOXYUPVWNZO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/HFSIBFFEDEQY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/BSBJQSWTSRSX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/BSBJQSWTSRSX</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/BAZMHRYHVCQG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltow er:eu-nor th-1:control/QXUX FMMQNNJIV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltow er:ap-south-1:control/NDBMIIUJFYKY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltow er:ap-northeast-2:control/QINDHCURJDPR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltow er:ap-northeast-1:control/QINDHCURJDPR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/0RADMUNKKIYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- t-3:control/rol/YQJYR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- YKIWLYT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- t-1:control/rol/PUKFR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- LSTCGTP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- t-1:control/rol/MABMU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- FJZSIUD</td>
</tr>
</tbody>
</table>
## SH.Redshift.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Redshift.4      | • NIST 800-53 Rev 5 AC-2(4) | • Establish logging and monitoring | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/UGPCVGZGVGBN |
|                    | • NIST 800-53 Rev 5 AC-4(26) | | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/VVVOXOKKREWDD |
|                    | • NIST 800-53 Rev 5 AC-6(9) | | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/HREVCGLTRGZP |
|                    | • NIST 800-53 Rev 5 AU-10 | | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/JWQMOSWEPUQNN |
<p>|                    | • NIST 800-53 Rev 5 AU-12 | | |
|                    | • NIST 800-53 Rev 5 AU-2 | | |
|                    | • NIST 800-53 Rev 5 AU-3 | | |
|                    | • NIST 800-53 Rev 5 AU-6(3) | | |
|                    | • NIST 800-53 Rev 5 AU-6(4) | | |
|                    | • NIST 800-53 Rev 5 CA-7 | | |
|                    | • NIST 800-53 Rev 5 SC-7(9) | | |
|                    | • NIST 800-53 Rev 5 SI-3(8) | | |
|                    | • NIST 800-53 Rev 5 SI-4(20) | | |
|                    | • NIST 800-53 Rev 5 SI-7(8) | | |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Asia Pacific (Sydney)**
  arn:aws:controltower:ap-southeast-2:control/UNNOEVFPFBMC

- **Asia Pacific (Singapore)**
  arn:aws:controltower:ap-southeast-1:control/FZJIXFLBDRUT

- **Europe (Frankfurt)**
  arn:aws:controltower:eu-central-1::control/TXHHSJDORTML

- **Europe (Ireland)**
  arn:aws:controltower:eu-west-1::control/WWXRQFACPRHJ

- **Europe (London)**
  arn:aws:controltower
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:cont rol/JLWRG FBTTBOI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:c ontroltow er:eu-nor th-1:cont rol/HGPL AVRGKLHM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:c ontroltow er:ap-sou th-1:cont rol/JHIV YPB00DHM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:c ontroltow er:ap-nor theast-2: :control/ VAONGWDMQJRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:c ontroltow er:ap-nor theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BDVLMXDLACBS</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-wes:t-3:control/DTMFZ/CWWBWBB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America</td>
<td>arn:aws:controltower:sa-eas:t-1:control/EYHIR/CYXXFHZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N.</td>
<td>arn:aws:controltower:us-wes:t-1:control/OCZIX/JSTBKZD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.Redshift.6      | • NIST 800-53 Rev 5 CA-9(1)  
                    • NIST 800-53 Rev 5 CM-2  
                    • NIST 800-53 Rev 5 CP-9  
                    • NIST 800-53 Rev 5 SC-5(2)  
                    • NIST 800-53 Rev 5 SI-2  
                    • NIST 800-53 Rev 5 SI-2(2)  
                    • NIST 800-53 Rev 5 SI-2(4)  
                    • NIST 800-53 Rev 5 SI-2(5)  
                    • PCI DSS version 3.2.1 6.2 | • Manage vulnerabilities | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/TKSZMFLLVEU  
• US East (Indiana)  
arn:aws:controltower:us-east-2::control/JHAJJHIIIVUZK  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/TTPCFJGMJZSJ  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/MWBNNTMYOBOQK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/WMXBZOHRKUOQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/DKJZUWRDLHV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/TM JCFUASVOFO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/SNCYQNOVQMMH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/YGTSS KVIHAGTU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1:control/YRRO EFOYJQLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-southeast-1:control/VIKOAEM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control-LJCVQRORIRSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control-</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UOQTHHTKQQAJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/IOUWEZSPPBNS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/UGSNUMXXOSJU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/LGUQERXHEPJH</td>
</tr>
</tbody>
</table>
SH.Redshift.7

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.Redshift.7      | • NIST 800-53 Rev 5 AC-4
• NIST 800-53 Rev 5 AC-4(21)
• NIST 800-53 Rev 5 SC-7
• NIST 800-53 Rev 5 SC-7(11)
• NIST 800-53 Rev 5 SC-7(20)
• NIST 800-53 Rev 5 SC-7(21)
• NIST 800-53 Rev 5 SC-7(4)
• NIST 800-53 Rev 5 SC-7(9)
• PCI DSS version 3.2.1 1.2.1
• PCI DSS version 3.2.1 1.3
• PCI DSS version 3.2.1 1.3.1
• PCI DSS version 3.2.1 1.3.2
• PCI DSS version 3.2.1 1.3.4
• PCI DSS version 3.2.1 1.3.6 | • Limit network access | • US East (N. Virginia)
  arn:aws:controltower:us-east-1::control/EFKIEWIIFDJEZ
• US East (Ohio)
  arn:aws:controltower:us-east-2::control/LRZEWAWVMSSH
• US West (Oregon)
  arn:aws:controltower:us-west-2::control/JSLNDFAYMRXF
• Canada (Central)
  arn:aws:controltower:ca-central-1::control/VZIZLXFWAEFL |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2::control/</td>
<td></td>
<td>MVNWOYAUMTGJ</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1::control/</td>
<td></td>
<td>RERSLKEIBQHG</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/</td>
<td></td>
<td>ISPCIAYQCB</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/</td>
<td></td>
<td>WFFFLIKXSJYG</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SH.Redshift.7 5262
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::controld/FDQXV YALJBAT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controld:eu-north-1:control/NDDI AQWLEPTB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controld:ap-south-1:control/QTIU HWEMWAMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controld:ap-northeast-2:control-2:DBIOXKSCYZGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controld:ap-northeast-1:control-2:SH.Redshift.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DSKLSBLANWJM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/CUGFTMBJPKPT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/BLCLCFXYBPRV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/PKUZKCMQQKRR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------</td>
<td>-------------------</td>
<td>---------------------------------------------------</td>
</tr>
</tbody>
</table>
| SH.Redshift.8      | • NIST 800-53 Rev 5 CA-9(1)                      | • Protect configurations | • US East (N. Virginia)  
ar:aws:controltower:us-east-1:control/DGHUXCTZEDYI |
|                    | • NIST 800-53 Rev 5 CM-2                         |                   | • US East (Ohio)  
ar:aws:controltower:us-east-2:control/BEPNPCQCPDWJ |
|                    | • PCI DSS version 3.2.1 2.1                     |                   | • US West (Oregon)  
ar:aws:controltower:us-west-2:control/KLCNPBVPMMMD |
|                    |                                                  |                   | • Canada (Central)  
ar:aws:controltower:ca-central-1:control/OU MGXBPLINOD |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/XIDWPGTUKALT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/FREYXDZYZTBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/XFBMDQEICXZM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/ROJQXUSTAPYS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/DIPEQ-YZCPMLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor-th-1:control/ABEX-BGLMXTJB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-east-1:control/LNLP-IBKGAUQR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control-KHSJIQXMKUKN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control-5267</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HQIOVIJMPDMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/ZLWJDNJODZNI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/XIJRAJTWHCJI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/OUYAXYKXNKVB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>SH.Redshift.9</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Protect configurations</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/SMGEE/LXNDBKM</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/OVOHL/KXBVPQL</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.1</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/UQQKZ/EWILTCV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/CS/0GIJBMPVER</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/TTPOHLOSZBP0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/THQBUSXDSJML</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/XSRKMHENVRZY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/XSRKMHENVRZY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower:eu-west-1::control/XSRKMHENVRZY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/PMKUA DEMALEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/UNITI RUWZWUNN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/DNJV ACRRVQMJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control:VYGTYLRWZYAD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:SH.Redshift.95271</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/VZUUWSEPMGAG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/GQRHHERYSAUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/GMLYQLDUQHXH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/XFUBODJYVTNX</td>
</tr>
</tbody>
</table>
### SH.S3.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.S3.1            | • CIS AWS Benchmark 1.4.2.1.5  
• NIST 800-53 Rev 5 AC-2(1)  
• NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(15)  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 AU-9  
• NIST 800-53 Rev 5 AU-9(2)  
• NIST 800-53 Rev 5 CA-7  
• NIST 800-53 Rev 5 CA-9(1)  
• NIST 800-53 Rev 5 CM-3(6) | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/XKHROGVFBHP  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/JRCVWAZSRAPY  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/PSJEDKJBNWNR  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/ARAAXROCJLMK |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/UBQSERAFQQLI</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/TFBJICHQSQCX</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 CP-9</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1::control/UYQJNPZSGMATA</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-12(2)</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1::control/LSUJTPCOECCR</td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-1::control/LSUJTPCOECCR</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>t-2:control/BFOHY IZSLOKR</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-nor th-1:control/DHAD SFAEUWZS</td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-4(4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SH.S3.1 5275
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 10.5.3</td>
<td></td>
<td></td>
<td>:control/VRH0XLIG0OYV</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.5.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 11.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 3.5.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 7.2.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Europe (Paris)**
  - `arn:aws:controltower:eu-west-3::control/ECBYLUUJDHST`

- **South America (São Paulo)**
  - `arn:aws:controltower:sa-east-1::control/EYOPEGKZSTTF`

- **US West (N. California)**
  - `arn:aws:controltower:us-west-1::control/XWNNIXUOSTDBE`
## SH.S3.10

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.S3.10</td>
<td>• NIST 800-53 Rev 5 AU-9(2)</td>
<td>• Optimize costs</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Improve availability</td>
<td>arn:aws:controltower:us-east-1::control/YXSHBLNRJEIL</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-9</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/RYZTTCAMHLSE</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-5(2)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/NNKPEWEOGGGE</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.5.3</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.5.4</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/MVWRAOTEOGZF</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Asia Pacific (Sydney)**
  - `arn:aws:controltower:ap-southeast-2:control/OEWTPHSMPPGY`

- **Asia Pacific (Singapore)**
  - `arn:aws:controltower:ap-southeast-1:control/GEEKTSNJMQZE`

- **Europe (Frankfurt)**
  - `arn:aws:controltower:eu-central-1:control/CGPVJAMLPNCD`

- **Europe (Ireland)**
  - `arn:aws:controltower:eu-west-1:control/WYRBYRJBCFGJ`

- **Europe (London)**
  - `arn:aws:controltower:eu-west-1:control/WYRBYRJBCFGJ`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/JDVMZ0QVCGKE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1:control/UFOINGFEAASV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control/KPCTMBEDXBVA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control:LRFQVSXHRHYQU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control:</td>
</tr>
</tbody>
</table>

SHS3.10

5279
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>:control/PKQZDJRIPDCH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-west-3::control/IPTDZHHPYCLJX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-east-1::control/ZBNPDNBGPNYX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-west-1::control/POQFE00GZRPP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## SH.S3.11

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.S3.11</td>
<td>• NIST 800-53 Rev 5 CA-7</td>
<td>• Establish logging and monitoring</td>
<td>• <strong>US East (N. Virginia)</strong></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-3(8)</td>
<td></td>
<td><code>arn:aws:controltower:us-east-1::control/NMYTVSNCIAIE</code></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-4</td>
<td></td>
<td>• <strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-4(4)</td>
<td></td>
<td><code>arn:aws:controltower:us-east-2::control/KTXZKUGIOZB</code></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 11.5</td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:us-west-2::control/YEESXUDJFQTY</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ca-central-1::control/ITNNRYBVJGNI</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/ HYDZJVQVOSSG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/ DCZQYLXVSENF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/VPORJPKMJTX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/JGYTW TUCDJRI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Europe (Stockholm)**  
  arn:aws:controltower:eu-north-1::control/JQLFN  
  EUIAMQV

- **Asia Pacific (Mumbai)**  
  arn:aws:controltower:ap-south-1::control/RFTV  
  XUXSDPBJ

- **Asia Pacific (Seoul)**  
  arn:aws:controltower:ap-northeast-2::control/LDPZBYDVREOG

- **Asia Pacific (Tokyo)**  
  arn:aws:controltower:ap-northeast-1::control/
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/UWDNCNQHITXR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/IFMFFIFRXKSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/GMKHBZANUDII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/ZOLMKQEAIFZIO</td>
</tr>
</tbody>
</table>
## SH.S3.12

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.S3.12           | • NIST 800-53 Rev 5 AC-2(1)            | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/BKLSQSHMCKWE |
|                    | • NIST 800-53 Rev 5 AC-3               |                   | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/KTPCIMELTXVN |
|                    | • NIST 800-53 Rev 5 AC-3(15)           |                   | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/SDRCGUWECWP |
|                    | • NIST 800-53 Rev 5 AC-3(7)            |                   | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/UNGOCLMLKNAH |
<p>|                    | • PCI DSS version 3.2.1 7.1.1           |                   |                     |
|                    | • PCI DSS version 3.2.1 7.2.3           |                   |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/</td>
<td>IYZUNEUFKEBY</td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/</td>
<td>LEZPLYTTTVHV</td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/</td>
<td>IDBJOCXIKM</td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/</td>
<td>OCMEJBXKCWSF</td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/WQICVAPWAYEZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-north-1::control/WYYTZOHUUUA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/QYSZQBRLIVHX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control-UWBLTNMBDOOX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control-WQICVAPWAYEZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>:control/WMGHTZRZASZI</td>
<td>• Europe (Paris)</td>
<td>arn:aws:controltower:eu-wes:t-3:control/VXTCTFSIHMVK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• South America (São Paulo)</td>
<td>arn:aws:controltower:sa-eas:t-1:control/NXKTRBNXNLUY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• US West (N. California)</td>
<td>arn:aws:controltower:us-wes:t-1:control/KLISLUUHUYPN</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------</td>
<td>----------------------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>SH.S3.13</td>
<td>• NIST 800-53 Rev 5 AU-9(2)</td>
<td>• Optimize costs</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1:control/UDFSBDLMCKHG</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-10</td>
<td>• Improve availability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-6(2)</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2:control/DDDWXYAMKSZD</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CP-9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-13(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.5.3</td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1:control/KPNAKOZEARRB</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.5.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 10.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/TVWHDSTFPQWH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/GCYHDAOAIZEQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/GYGNQLCYPEX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/QPSEX0FWNQEZY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-wes:control/TWVXC:PMNSEVC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor:control/LIVW:OXMJIWLF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-east-1:control/EKXY:SHHNTFGF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/MNDGHSQGIHSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/MNDGHSQGIHSP</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IIUTDTJVTRUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong>&lt;br&gt;arn:aws:controltower:eu-wes:t-3:control/HVDXLVVRSLWK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong>&lt;br&gt;arn:aws:controltower:sa-eas:t-1:control/XZDSA KGUPOCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong>&lt;br&gt;arn:aws:controltower:us-wes:t-1:control/BZWMUSQKKNPY</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.S3.17           | • NIST 800-53 Rev 5 AU-9  
                   | • NIST 800-53 Rev 5 CA-9(1)  
                   | • NIST 800-53 Rev 5 CM-3(6)  
                   | • NIST 800-53 Rev 5 SC-12(2)  
                   | • NIST 800-53 Rev 5 SC-13  
                   | • NIST 800-53 Rev 5 SC-28  
                   | • NIST 800-53 Rev 5 SC-28(1)  
                   | • NIST 800-53 Rev 5 SC-7(10)  
                   | • NIST 800-53 Rev 5 SI-7(6)  
                   | • PCI DSS version 3.2.1 10.5  
                   | • PCI DSS version 3.2.1 10.5.2  
                   | • PCI DSS version 3.2.1 3.4  
                   | • PCI DSS version 3.2.1 3.5.3  
                   | • PCI DSS version 3.2.1 8.2.1  
|                    | Encrypt data at rest |                  | • US East (N. Virginia)  
                   |                    |                  | arn:aws:controltower:us-east-1::control/HAATLCRYJXSX  
                   |                    |                  | • US East (Ohio)  
                   |                    |                  | arn:aws:controltower:us-east-2::control/KKYBUSWNADNE  
                   |                    |                  | • US West (Oregon)  
                   |                    |                  | arn:aws:controltower:us-west-2::control/BPJKDXJRCEBE  
                   |                    |                  | • Canada (Central)  
                   |                    |                  | arn:aws:controltower:ca-central-1::control/QXTWLYUXVMIEMRCE
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2:control://RAKBNMGBWPVK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1:control://ZMDRQJPWIBDD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1:control://ETTAJQXVAU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1:control://LLSGHRBQBSES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower:eu-west-1:control://LLSGHNBQSES</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/SVUZW OTRLCSO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/ITYN EBUPBYGG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/QKQS GBTQTNI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control/CCDJWQAZRABA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1::control</td>
</tr>
</tbody>
</table>

SH.S3.17
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>:control/IHEVZGGQGBKX</td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MMSBT MNRGYRJ</td>
</tr>
<tr>
<td>South America</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td>t-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WENBE BLVIRFQ</td>
</tr>
<tr>
<td>US West (N.</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td>t-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TPDYJ NOFYPSU</td>
</tr>
</tbody>
</table>
## SH.S3.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.S3.2            | • CIS AWS Benchmark 1.4 3.3  
                      • NIST 800-53 Rev 5 AC-21  
                      • NIST 800-53 Rev 5 AC-3  
                      • NIST 800-53 Rev 5 AC-3(7)  
                      • NIST 800-53 Rev 5 AC-4  
                      • NIST 800-53 Rev 5 AC-4(21)  
                      • NIST 800-53 Rev 5 AC-6  
                      • NIST 800-53 Rev 5 SC-7  
                      • NIST 800-53 Rev 5 SC-7(11)  
                      • NIST 800-53 Rev 5 SC-7(16)  
                      • NIST 800-53 Rev 5 SC-7(20)  
                      • NIST 800-53 Rev 5 SC-7(21)  
                      • NIST 800-53 Rev 5 SC-7(3)  
                      • NIST 800-53 Rev 5 SC-7(4) | • Enforce least privilege |  
|                    | • US East (N. Virginia)  
                      arn:aws:controltower:us-east-1::control/EUQZPHPTYCGS  
|                    | • US East (Ohio)  
                      arn:aws:controltower:us-east-2::control/UWARQHCUKTWHT  
|                    | • US West (Oregon)  
                      arn:aws:controltower:us-west-2::control/KCEBTQBTPXWJ  
|                    | • Canada (Central)  
                      arn:aws:controltower:ca-central-1::control/BPFIVHGTXOGG  |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/WUHZWRYEJOUJ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/LBKNUOHEDPDK</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/UXNOYWDDKLN</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/RNRFWUNSMVZO</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------</td>
<td>-------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TNVEO DWBLGQT</td>
</tr>
<tr>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:eu-north</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu-north control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>nor th-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TNVEO DWBLGQT</td>
</tr>
<tr>
<td>Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>Asia Pacific (Mumbai)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-south control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>south-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WQFT UQOYEP0</td>
</tr>
<tr>
<td>Asia Pacific (Seoul)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>Asia Pacific (Seoul)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-north control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>north-2::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JVTGANIDGRYD</td>
</tr>
<tr>
<td>Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>Asia Pacific (Tokyo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ap-north control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>north-1::control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JVTGANIDGRYD</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

- **Europe (Paris)**
  - ARN: `arn:aws:controltower:eu-west-3::control/DNOPT VOVRECR`

- **South America (São Paulo)**
  - ARN: `arn:aws:controltower:sa-east-1::control/LEZLN XWHNOBS`

- **US West (N. California)**
  - ARN: `arn:aws:controltower:us-west-1::control/EUHTM NOVXIUP`
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.S3.3            | • CIS AWS Benchmark 1.4 3.3  
• NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20)  
• NIST 800-53 Rev 5 SC-7(21)  
• NIST 800-53 Rev 5 SC-7(3)  
• NIST 800-53 Rev 5 SC-7(4)  | • Enforce least privilege | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/OXQICLGDVUS  
• US East (Ohio)  
arn:aws:controltower:us-east-2::control/NRDDEBYYUWNIQ  
• US West (Oregon)  
arn:aws:controltower:us-west-2::control/TSWBIXBIHDPI  
• Canada (Central)  
arn:aws:controltower:ca-central-1::control/AQQIXVCNLDYX |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) <code>arn:aws:controltower:ap-southeast-2::control/YJQGDKELZCKA</code></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) <code>arn:aws:controltower:ap-southeast-1::control/LEHHNNZDYPSC</code></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) <code>arn:aws:controltower:eu-central-1::control/ZTSEFWNWBF</code></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Ireland) <code>arn:aws:controltower:eu-west-1::control/DUWNOGUJJEYE</code></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (London) <code>arn:aws:controltower:eu-west-1::control/DUWNOGUJJEYE</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/ZQLFS FHMBNQF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/LTIV GDFURRIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/MUMH ADVUHEXE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2::control UQFGRBKNKRVKM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IOXTWTJPAGNK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/NCGLTHGVRQUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/NQYKUEVXJMTQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/LQHXMDREDMHB</td>
</tr>
</tbody>
</table>
## SH.S3.5

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.S3.5            | • CIS AWS Benchmark 1.4 2.1.2                   | • Encrypt data in transit                 | • US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/QPIQHVFRBWEY |
|                    | • NIST 800-53 Rev 5 AC-17(2)                     |                                           | • US East (Ohio)  
arn:aws:controltower:us-east-2::control/PZTPBSALVUYK |
|                    | • NIST 800-53 Rev 5 AC-4                         |                                           | • US West (Oregon)  
arn:aws:controltower:us-west-2::control/HYHJNWCTPBFR |
|                    | • NIST 800-53 Rev 5 IA-5(1)                      |                                           | • Canada (Central)  
arn:aws:controltower:ca-central-1::control/RQKKRCVIIKYW |
<p>|                    | • NIST 800-53 Rev 5 SC-12(3)                     |                                           |                            |
|                    | • NIST 800-53 Rev 5 SC-13                        |                                           |                            |
|                    | • NIST 800-53 Rev 5 SC-23                        |                                           |                            |
|                    | • NIST 800-53 Rev 5 SC-23(3)                     |                                           |                            |
|                    | • NIST 800-53 Rev 5 SC-7(4)                      |                                           |                            |
|                    | • NIST 800-53 Rev 5 SC-8                         |                                           |                            |
|                    | • NIST 800-53 Rev 5 SC-8(1)                      |                                           |                            |
|                    | • NIST 800-53 Rev 5 SC-8(2)                      |                                           |                            |
|                    | • NIST 800-53 Rev 5 SI-7(6)                      |                                           |                            |
|                    | • PCI DSS version 3.2.1 2.2                      |                                           |                            |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
|                    |           | • PCI DSS version 3.2.1 4.1 | • Asia Pacific (Sydney)  
ar.n:aws:controltower:ap-southeast-2:control/  
MYWMNVQHDBPC |
|                    |           | • PCI DSS version 3.2.1 8.2.1 | • Asia Pacific (Singapore)  
ar.n:aws:controltower:ap-southeast-1:control/  
BIELWGHJKGPA    |
|                    |           |                           | • Europe (Frankfurt)  
ar.n:aws:controltower:eu-central-1:control/  
UHCKLBMUEV |
|                    |           |                           | • Europe (Ireland)  
ar.n:aws:controltower:eu-west-1:control/  
BPQXZTSPWVVX |
|                    |           |                           | • Europe (London)  
ar.n:aws:controltower/  |

**SH.S3.5**
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/PRNYX IYGVRXN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/VDLZ MBUFATGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/OJXA XIGHYFQW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/OVTXWKOBZPZR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/OVTXWKOBZPZR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/URNKTBOWAHSH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/ULMDA TXUHGXD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/UYVC OLSTZUL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/PNULP QNUPXRO</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.S3.6            | • NIST 800-53 Rev 5 CA-9(1)  
                   | • NIST 800-53 Rev 5 CM-2  
                   | • PCI DSS version 3.2.1 7.1.1  
                   | • PCI DSS version 3.2.1 7.2.3  
                   | • Enforce least privilege  
                   | • US East (N. Virginia)  
                   | arn:aws:controltower:us-east-1::control/controls/ArnKTMNKSVOVXN  
                   | • US East (Ohio)  
                   | arn:aws:controltower:us-east-2::control/controls/ArnFZXEOLVPPYH  
                   | • US West (Oregon)  
                   | arn:aws:controltower:us-west-2::control/controls/ArnTIXQXDCCZII  
                   | • Canada (Central)  
<pre><code>               | arn:aws:controltower:ca-central-1::control/controls/ArnCSMHSZBPAOD |
</code></pre>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/FGNEAZJPHZUU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/AZGSOSZUWIKH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/QNWJDZCIVDCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/XMWBZXRYGTMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/MGOBAFXHMHUH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:control/tow er:eu-nor th-1:control/QKUSDWPBMHZG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:control/tow er:ap-south-1:control/DBISINHULBGV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:control/tow er:ap-northeast-2:control/QJAYWXCXHDN</td>
</tr>
</tbody>
</table>
|                    |           |                  | • Asia Pacific (Tokyo) arn:aws:control/tow er:ap-northeast-1:
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>:control/</td>
<td></td>
<td></td>
<td>XUHLFSNTEWFP</td>
</tr>
<tr>
<td>Europe (Paris)</td>
<td>arn:aws:controltower:eu-wes:t-3:control/AARUNPWJDELC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South America (São Paulo)</td>
<td>arn:aws:controltower:sa-eas:t-1:control/WKWUMSNSAANN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US West (N. California)</td>
<td>arn:aws:controltower:us-wes:t-1:control/WIYZFXURQWZS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SH.S3.8

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.S3.8            | • CIS AWS Benchmark 1.4 2.1.5  
  • NIST 800-53 Rev 5 AC-21  
  • NIST 800-53 Rev 5 AC-3  
  • NIST 800-53 Rev 5 AC-3(7)  
  • NIST 800-53 Rev 5 AC-4  
  • NIST 800-53 Rev 5 AC-4(21)  
  • NIST 800-53 Rev 5 AC-6  
  • NIST 800-53 Rev 5 SC-7  
  • NIST 800-53 Rev 5 SC-7(11)  
  • NIST 800-53 Rev 5 SC-7(16)  
  • NIST 800-53 Rev 5 SC-7(20)  
  • NIST 800-53 Rev 5 SC-7(21)  
  • NIST 800-53 Rev 5 SC-7(3)  
  • NIST 800-53 Rev 5 SC-7(4)  | • Enforce least privilege |  
  • US East (N. Virginia)  
    arn:aws:controltower:us-east-1::control/BPQJKFITSWH  
  • US East (Ohio)  
    arn:aws:controltower:us-east-2::control/ZAAZUIGROKPH  
  • US West (Oregon)  
    arn:aws:controltower:us-west-2::control/PDKYANAJEWJE  
  • Canada (Central)  
    arn:aws:controltower:ca-central-1::control/RXZJMQE0LMGW |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/HISIOKDAAMQR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/NAQFFFPSERVD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/OGUOLZTXJTVW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/SYIHFFPXEMOL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London) arn:aws:controltower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-west-2:control::LMEJYAPAVGXW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor-1:control::YUTTRNVCQCIJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1:control::HTLHSBYDSNKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control::LNGHEQDYEQLV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control::</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LUJLEEORWUBI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/PNWCPAETGOAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/YFMJMXPVFUKX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/RTJHMNHBMMAJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| SH.S3.9            | • CIS AWS Benchmark 1.4 3.6  
  • NIST 800-53 Rev 5 AC-2(4)  
  • NIST 800-53 Rev 5 AC-4(26)  
  • NIST 800-53 Rev 5 AC-6(9)  
  • NIST 800-53 Rev 5 AU-10  
  • NIST 800-53 Rev 5 AU-12  
  • NIST 800-53 Rev 5 AU-2  
  • NIST 800-53 Rev 5 AU-3  
  • NIST 800-53 Rev 5 AU-6(3)  
  • NIST 800-53 Rev 5 AU-6(4)  
  • NIST 800-53 Rev 5 CA-7  
  • NIST 800-53 Rev 5 SC-7(9)  
  • NIST 800-53 Rev 5 SI-3(8)  
  • NIST 800-53 Rev 5 SI-4(20) | • Establish logging and monitoring | • US East (N. Virginia)  
  arn:aws:controltower:us-east-1::control/QMWZZISJNGVG  
  • US East (Ohio)  
  arn:aws:controltower:us-east-2::control/XEYTESFJJVRU  
  • US West (Oregon)  
  arn:aws:controltower:us-west-2::control/UMKAXUFOAXGS  
  • Canada (Central)  
  arn:aws:controltower:ca-central-1::control/GF0FPVQBQVUFV
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NIST 800-53 Rev 5 SI-7(8)</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/ZPOEOPATKJIC</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/MXLTHQZBCTDQ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/YW WKWSZNPSI</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.3</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/HVKIHTICWHHEL</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.2.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 10.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:contro l/TZQIU GS NXNG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockhol m) arn:aws:c ontroltower er:eu-nor th-1:contro l/FSDR KINNPBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:c ontroltower er:ap-south-1:contro l/THYM KLHAVMWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:c ontroltower er:ap-northeast-2:contro l/XKQRAYJCRJRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:c ontroltower er:ap-northeast-1:contro l/</td>
</tr>
</tbody>
</table>

SH53.9 5319
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KHOWWKTFVNWS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:0:control/XEVOZIAAWYKS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:0:control/YZMEODWAHVDSL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:0:control/ZJRFWTNSWEVB</td>
</tr>
</tbody>
</table>
## SH.SNS.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.SNS.1</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/DXZDOLIUCILU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/YPXKYRNYCKS</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/JTEBIKCLLRKC</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/HUNUJVRXGYJH</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
</tbody>
</table>
|                    |           |                  | arn:aws:controltower:ap-southeast-2: :
|                    |           |                  | :control/RJPBPBVBLXQI                |
|                    |           |                  | • Asia Pacific (Singapore)           |
|                    |           |                  | arn:aws:controltower:ap-southeast-1: :
|                    |           |                  | :control/EXVFJOMQYEPZ                |
|                    |           |                  | • Europe (Frankfurt)                 |
|                    |           |                  | arn:aws:controltower:eu-central-1: :
|                    |           |                  | :control/VFLOWOVMCNQF                |
|                    |           |                  | • Europe (Ireland)                  |
|                    |           |                  | arn:aws:controltower:eu-west-1: :
<p>|                    |           |                  | :control/ATAMJPJTZVBT                |
|                    |           |                  | • Europe (London)                   |
|                    |           |                  | arn:aws:controltower:               |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/AQEPY NTMFVZN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:c ontroltower er:eu-nor th-1::cont rol/FZCV BXYYZEPW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:c ontroltower er:ap-sou th-1::cont rol/WDDS EPDQGELD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:c ontroltower er:ap-nor theast-2::control/ MJERXRWAXBQL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:c ontroltower er:ap-nor theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FQDPREMVVBHY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes-t-3:control/MPWYPMECJHDO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1:control/YYTATHJHTJHD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1:control/EOHPUZHBQTSB</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| SH.SNS.2           | • NIST 800-53 Rev 5 AU-12              | • Establish logging and monitoring     | • US East (N. Virginia)  
ar:n:aws:controltower:us-east-1::control/UJGAA TDFQPEB          |
|                    | • NIST 800-53 Rev 5 AU-2               |                                         | • US East (Ohio)           
ar:n:aws:controltower:us-east-2::control/OZGKT TXQNVJH            |
|                    | • PCI DSS version 3.2.1 10.1           |                                         | • US West (Oregon)         
ar:n:aws:controltower:us-west-2::control/BQNJQ ZDDAPMH             |
|                    |                                        |                                         | • Canada (Central)         
ar:n:aws:controltower:ca-central-1::control/ZA SOMECURBPO          |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>t-2:control/IFFLS</td>
<td></td>
<td></td>
<td>EGZZOUB</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-nor</td>
<td>control/CTOV</td>
<td>FQDVCJAA</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-south-1</td>
<td>control/EFGS</td>
<td>SRJSCQHJ</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2</td>
<td>control/EWMPINBPPCPC</td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1</td>
<td>control/EWMPINBPPCPC</td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/DPMGVDDIIISI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:t-3:control/ROL/SODUCRSZJCQJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America</strong> (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:t-1:control/MFCJPYTVEGUW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:t-1:control/NVTKORXVIZCW</td>
</tr>
</tbody>
</table>
SH.SQS.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.SQS.1</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Encrypt data at rest</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-3(6)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/AQPZJAICUMOX</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-13</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/FSJSWXDXTQG</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-28(1)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(10)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/DVIYOYZQQBHZ</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-7(6)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 3.4</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/YNRXRVWROTER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/ENSHCNPLXZHX</td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ NZDJTQADTXGS</td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/QYTAUTUONG</td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/KKBOVJBZKRXH</td>
</tr>
<tr>
<td>• Europe (London)</td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/AREAYHKBSDVF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>ZDMVZWYXPYNG</td>
<td></td>
<td></td>
<td>:control/ZDMVZWYXPYNG</td>
</tr>
<tr>
<td>• Europe (Paris)</td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/EMOPJHNXCSWH</td>
</tr>
<tr>
<td>• South America</td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/XCTLDMBISCM</td>
</tr>
<tr>
<td>(São Paulo)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• US West (N.</td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/NKGRFJUHQFGJ</td>
</tr>
<tr>
<td>California)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SH.SSM.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.SSM.1           | • NIST 800-53 Rev 5 CA-9(1)  
                      • NIST 800-53 Rev 5 CM-2  
                      • NIST 800-53 Rev 5 CM-2(2)  
                      • NIST 800-53 Rev 5 CM-8  
                      • NIST 800-53 Rev 5 CM-8(1)  
                      • NIST 800-53 Rev 5 CM-8(2)  
                      • NIST 800-53 Rev 5 CM-8(3)  
                      • NIST 800-53 Rev 5 SA-15(2)  
                      • NIST 800-53 Rev 5 SA-15(8)  
                      • NIST 800-53 Rev 5 SA-3  
                      • NIST 800-53 Rev 5 SI-2(3)  
                      • PCI DSS version 3.2.1 2.4 | • Manage vulnerabilities  
                                      • Protect configurations | • US East (N. Virginia)  
                                        arn:aws:controltower:us-east-1::control/LYPKGNLPNWHL  
                                      • US East (Ohio)  
                                        arn:aws:controltower:us-east-2::control/STNJGCQJCIW  
                                      • US West (Oregon)  
                                        arn:aws:controltower:us-west-2::control/MJMHFBPPWLJA  
                                      • Canada (Central)  
                                        arn:aws:controltower:ca-central-1::control/XOUNWBPZJNVB |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/RLRUQAVPCAZI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/NWSTAJGQOJBJJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/RA PYUEVJEJBI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/RXNTSMQLKTSN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/ZQSTF GETEWJA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/KSKC LFWRETEJP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/ISTI TQJTNGSD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control:SOADYNVMUUSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control:</td>
</tr>
</tbody>
</table>

SH.SSM.1
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HGKHYMQXWZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ctroltower:eu-wes-t-3:controll/QHTLZMCZKVAA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ctroltower:sa-eas-t-1:control/PWIIULRITCIKD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:ctroltower:us-wes-t-1:control/AHGSLJBGGRQD</td>
</tr>
</tbody>
</table>
## SH.SSM.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.SSM.2</td>
<td>• NIST 800-53 Rev 5 CM-8(3)</td>
<td>• Manage vulnerabilities</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/RDSQHZJJNJDY</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2(2)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2(3)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/JSMHJHLHELYO</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2(4)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SI-2(5)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/FFOYUQFIGGQM</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 2.2</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 6.2</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/NMLXRBLHMGS L</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/LARTAAZXHQGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/ZAEIEMPTKSGD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/HSENLNFBIHTF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/KUSFI FXCWYPN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::cont rol/OMNUM QWSKXCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-euwes-2::control/OMNUM QWSKXCR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/UAFF TPZIXDJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/YPZMNGTROKXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/YPZMNGTROKXV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/GYGBASAIOIXS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
<td>arn:aws:controltower:eu-west-3::control/NZGSDZDQPQIL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
<td>arn:aws:controltower:sa-east-1::control/LNHSBYVRSTVG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
<td>arn:aws:controltower:us-west-1::control/OCZSGXLBRYOH</td>
</tr>
</tbody>
</table>
## SH.SSM.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.SSM.3           | • NIST 800-53 Rev 5 CA-9(1)  
                    • NIST 800-53 Rev 5 CM-2  
                    • NIST 800-53 Rev 5 CM-2(2)  
                    • NIST 800-53 Rev 5 CM-8  
                    • NIST 800-53 Rev 5 CM-8(1)  
                    • NIST 800-53 Rev 5 CM-8(3)  
                    • NIST 800-53 Rev 5 SI-2(3)  
                    • PCI DSS version 3.2.1 2.2  
                    • PCI DSS version 3.2.1 6.2 | • Manage vulnerabilities  
                    • Protect configurations | • US East (N. Virginia)  
                        arn:aws:controltower:us-east-1::control/KBRZY0MGLHXE  
                        • US East (Ohio)  
                        arn:aws:controltower:us-east-2::control/FUUFUNICZWAN  
                        • US West (Oregon)  
                        arn:aws:controltower:us-west-2::control/RDXQFIOFSBGG  
                        • Canada (Central)  
                        arn:aws:controltower:ca-central-1::control/FVQFKOJUNLOY |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/ICKTKXTHFZDK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-north-1::control/SLNL DXNHYMTS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-southeast-1::control/CVEGWZBOLQVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/UAWRVXEXHOXI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/SH.SSM.35343</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/KPMCXMAZTWY0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/OBWPGGUSJHOL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/DQOIXCSNNCLV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/NRHVHBLWZMMA</td>
</tr>
</tbody>
</table>
### SH.SSM.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.SSM.4</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-1::controller/QPOQE_RPDKUUL</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td>arn:aws:controltower:us-east-2::controller/NGXEG_NPKLRFM</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td>arn:aws:controltower:us-west-2::controller/FBHAN_BZBEATL</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td>arn:aws:controltower:ca-central-1::controller/CR_PLDMSGZVNX</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td>Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/RKBCVEOAAXFA</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td>Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/JGSYATCRDPGX</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td>Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/VAHYIPPEEDS</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td>Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/VWFNFROBVOX</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td>Europe (London)</td>
<td>arn:aws:controltower:eu-west-1:control/VWFNFROBVOX</td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-2:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>rol/VJYRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GSBXCNM</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:eu-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/SAGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>QDVUTVPI</td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:ap-south</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>th-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/XRDY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UTEVYMMA</td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2:control-2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UDAQAMUOGDDV</td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower</td>
<td></td>
<td>er:ap-nor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1:</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>:control/IUFQEARVUHK</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/ATGID TBHLUTW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/ZGSGX XWGZKYKA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/MNCPC UXYPLYN</td>
</tr>
</tbody>
</table>
## SH.SageMaker.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.SageMaker.1     | • NIST 800-53 Rev 5 AC-21  
• NIST 800-53 Rev 5 AC-3  
• NIST 800-53 Rev 5 AC-3(7)  
• NIST 800-53 Rev 5 AC-4  
• NIST 800-53 Rev 5 AC-4(21)  
• NIST 800-53 Rev 5 AC-6  
• NIST 800-53 Rev 5 SC-7  
• NIST 800-53 Rev 5 SC-7(11)  
• NIST 800-53 Rev 5 SC-7(16)  
• NIST 800-53 Rev 5 SC-7(20)  
• NIST 800-53 Rev 5 SC-7(21)  
• NIST 800-53 Rev 5 SC-7(3)  
• NIST 800-53 Rev 5 SC-7(4)  
• NIST 800-53 Rev 5 SC-7(9) | • Limit network access | • **US East (N. Virginia)**  
arn:aws:controltower:us-east-1::control/RKGYZUOFZLRQ  
• **US East (Ohio)**  
arn:aws:controltower:us-east-2::control/TMAFWQWAQOAY  
• **US West (Oregon)**  
arn:aws:controltower:us-west-2::control/KSWIOTETFUQN  
• **Canada (Central)**  
arn:aws:controltower:ca-central-1::control/SQZAFTGIIIXLN |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) &lt;br&gt;arn:aws:controltower:ap-southeast-2::control/LYBVPJQFKFUM</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) &lt;br&gt;arn:aws:controltower:ap-southeast-1::control/OIWALMEQVBYZ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) &lt;br&gt;arn:aws:controltower:eu-central-1::control/WTYZGZDWCOY</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) &lt;br&gt;arn:aws:controltower:eu-west-1::control/NUSFXDTJWGYD</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) &lt;br&gt;arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>eu:eu-wes t-2::control/TUI00 PQFSYBC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/XDTA LWADUVAQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/DGBA JFFOFTUB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control:SNGBHAIQCTEF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/JICYNFRVRQX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/IPWMCVULQVXI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/LXFEKJNOJXFJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/YMPZFEHCRVWM</td>
</tr>
</tbody>
</table>
## SH.SageMaker.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.SageMaker.2</td>
<td>• NIST 800-53 Rev 5 AC-21</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3</td>
<td></td>
<td>arn:aws:controltower:us-east-t-1:control/PMUACTTBWIUR</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(7)</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4</td>
<td></td>
<td>arn:aws:controltower:us-east-t-2:control/VDBLYABRAGVK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-4(21)</td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-6</td>
<td></td>
<td>arn:aws:controltower:us-west-t-2:control/EVWTVVCSKQMU</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7</td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(11)</td>
<td></td>
<td>arn:aws:controltower:ca-central-t-1:control/RA PZNYOHIVYB</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 SC-7(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.2.1</td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2:control/XWKDVYDAVXSW</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3</td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1:control/TTNXTLKRLUQI</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.1</td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/UNUXNVPKDKY</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.2</td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/TLNAQUJQANTYZ</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.4</td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 1.3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• PCI DSS version 3.2.1 2.2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control:CQECIKXXJUJN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor:control/XJUIETBSJOWP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south:control/PLPATENUQNNZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/0IKBXEOZ0YQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control:SH.SageMaker.2</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/MCLMAWQKBWTG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower.eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control/QRSGK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HDVZGRN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower.sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/UUWNU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MSGTIYI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower.us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control/PLVBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>YQNQDLK</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| SH.SageMaker.3     | • NIST 800-53 Rev 5 AC-2(1)  

• NIST 800-53 Rev 5 AC-3(15)  

• NIST 800-53 Rev 5 AC-3(7)  

• NIST 800-53 Rev 5 AC-6  

• NIST 800-53 Rev 5 AC-6(10)  

• NIST 800-53 Rev 5 AC-6(2)  

• PCI DSS version 3.2.1 2.2  

• PCI DSS version 3.2.1 7.1.1  

• PCI DSS version 3.2.1 7.1.2  

• PCI DSS version 3.2.1 7.2.1  

• PCI DSS version 3.2.1 7.2.2  

• PCI DSS version 3.2.1 8.1.1  

• Enforce least privilege  

| US East (N. Virginia)  
arn:aws:controltower:us-east-1::control/FLKLKRSKSRQR  

| US East (Ohio)  
arn:aws:controltower:us-east-2::control/ZYWOLSUFYNHX  

| US West (Oregon)  
arn:aws:controltower:us-west-2::control/LWNZCRRKRHHIB  

| Canada (Central)  
arn:aws:controltower:ca-central-1::control/GBJUIOMQLVOT |
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/GHYJJWOGIPDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/HPLWOBUPSFSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/OJPMWQLZIGR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/QTVCQBLIKXTQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/PHGBYKRHRVZN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/QOYZOFZYUVBP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1::control/LMYFYNKDCOKV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control-2:GRZCUFGQEKEG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control-1:SH.SageMaker.3</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/HEUYIBPLNQU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3:control/YRYFWSNQQEB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1:control/VUPWZBFWTBDM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1:control/JBTRXDPMZMKNW</td>
</tr>
</tbody>
</table>
## SH.SecretsManager.1

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.SecretsManager.1</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Manage secrets</td>
<td>• <strong>US East (N. Virginia)</strong></td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td><code>arn:aws:controltower:us-east-1::control/NVINDDWBCJID</code></td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US East (Ohio)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:us-east-2::control/YRBOLGMRVCTS</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (Oregon)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:us-west-2::control/FSFKVERCZULZ</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Canada (Central)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ca-central-1::control/ABZHCDTAXCTD</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney) arn:aws:controltower:ap-southeast-2::control/PIPRUKNSS0CX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore) arn:aws:controltower:ap-southeast-1::control/ABWGMGKAZWBZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt) arn:aws:controltower:eu-central-1::control/VP LLFHIPDJDZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland) arn:aws:controltower:eu-west-1::control/PPXVTT TQIJCWC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London) arn:aws:controltower</td>
</tr>
</tbody>
</table>

SH.SecretsManager.1 5362
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2:control/PAPTN HXGBYVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor-1:control/CKUS CVVHKNIR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south-1:control/VCDO MBQOZAKF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control/GPALVEMMRYOJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control/GPALVEMMRYOJ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/LSEQYMIVIBNA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/rol/DZAFJ WOHCCOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/rol/IHQTQ RKAFULV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/rol/NPFKT IKTONEU</td>
</tr>
</tbody>
</table>
### SH.SecretsManager.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.SecretsManager.2</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Manage secrets</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/WMGPNBVAGVFK</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.4</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/NBCDBWRQFNMA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/MEFMYKVDMILQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/STQSZAQDRTYI</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/\HOQMRBMNIKAW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/\ODPPJQBZCOTX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1::control/\BWANKZRGIB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1::control/\STHNSKDZTLYY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/HKCSA HJCYOBE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Europe (Stockholm) arn:aws:ctnroltower:eu-nor th-1:control/ZASY FRCXDOII</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Mumbai) arn:aws:ctnroltower:ap-south-1:control/LOGB IWTPOFLX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Seoul) arn:aws:ctnroltower:ap-northeast-2:control/GIGGAHAENDHH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Asia Pacific (Tokyo) arn:aws:ctnroltower:ap-northeast-1:control/SH.SecretsManager.2 5367</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/FEQZVIIMFICA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/MPJHRSESKKPX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/VYULRBMPXUKV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/YRFKOVVIPIDDR</td>
</tr>
</tbody>
</table>
## SH.SecretsManager.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.SecretsManager.3</td>
<td>• NIST 800-53 Rev 5 AC-2(1)&lt;br&gt;• NIST 800-53 Rev 5 AC-3(15)&lt;br&gt;• PCI DSS version 3.2.1 8.1.4</td>
<td>• Manage secrets</td>
<td>• US East (N. Virginia)&lt;br&gt;arn:aws:controltower:us-east-1::control/QQURRVKYALIYF&lt;br&gt;• US East (Ohio)&lt;br&gt;arn:aws:controltower:us-east-2::control/DPKZCRDWWFPC&lt;br&gt;• US West (Oregon)&lt;br&gt;arn:aws:controltower:us-west-2::control/IVSZZVBQUNGM&lt;br&gt;• Canada (Central)&lt;br&gt;arn:aws:controltower:ca-central-1::control/ZKLBBEFBUMDR</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Sydney)</strong> arn:aws:controltower:ap-southeast-2:control/FNKXYQSZMWQM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Singapore)</strong> arn:aws:controltower:ap-southeast-1:control/DVRPVFHGPOQI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Frankfurt)</strong> arn:aws:controltower:eu-central-1:control/PXRUQAQCPNSY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Ireland)</strong> arn:aws:controltower:eu-west-1:control/KRZOMDMWLCFU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (London)</strong> arn:aws:controltower</td>
</tr>
</tbody>
</table>

---

SH.SecretsManager.3 5370
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>er:eu-wes</td>
<td></td>
<td></td>
<td>er:eu-wes t-2:control/HLNBT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XEOYZHV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-nor</td>
<td>Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-north-1:control/GIFL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RYEYHEHL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southwest-1:control/DRWD</td>
<td>Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southeast-1:control/MSPQXYBGOSXA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DUMJXGDX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control</td>
<td>Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-1:control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ FNOJORYKEHUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes:3::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/GEOKFDUAKJVU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas:1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/SXONJYJKZCIN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes:1::</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>control/LXFYELIRGOXXV</td>
</tr>
</tbody>
</table>
### SH.SecretsManager.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.SecretsManager.4</td>
<td>• NIST 800-53 Rev 5 AC-2(1)</td>
<td>• Manage secrets</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 AC-3(15)</td>
<td></td>
<td>arn:aws:controltower:us-east-1::control/SWGHBAYWQTEU</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 8.2.4</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-east-2::control/LVTTSUIMJUHB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-2::control/WIRZVNDRETYM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ca-central-1::control/BNCSMILPESRZ</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-2:control/PTCINVDOZREK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-southeast-1:control/LLXUCSEGVUUZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-central-1:control/YIDNVPANOFAF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-1:control/JKDFTFHBBSEK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/QNRCH TJKUIIZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Stockholm)</strong> arn:aws:controltower:eu-nor th-1::control/TIDM OKHUHNBS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Mumbai)</strong> arn:aws:controltower:ap-south th-1::control/MFXR VGDHFFAU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Seoul)</strong> arn:aws:controltower:ap-northeast-2:control2: control/DZWYNEXSLLEJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Asia Pacific (Tokyo)</strong> arn:aws:controltower:ap-northeast-1:control</td>
</tr>
</tbody>
</table>

SH.SecretsManager.4 S375
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/IIHPFCYMQEGJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3::control/LXYXK MYBTCEY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/QARJZ OGDUKDN</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/JVQTG NTBDUZR</td>
</tr>
</tbody>
</table>
## SH.WAF.10

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.WAF.10</td>
<td>• NIST 800-53 Rev 5 CA-9(1)</td>
<td>• Limit network access</td>
<td>• US East (N. Virginia) arn:aws:controltower:us-east-1::control/KBBIQTAMwCXK</td>
</tr>
<tr>
<td></td>
<td>• NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td>• US East (Ohio) arn:aws:controltower:us-east-2::control/WUVIEJDDNZKJ</td>
</tr>
<tr>
<td></td>
<td>• PCI DSS version 3.2.1 6.6</td>
<td></td>
<td>• US West (Oregon) arn:aws:controltower:us-west-2::control/AWZLGRLEJATU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central) arn:aws:controltower:ca-central-1::control/KZXB00IWJPML</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td>Framework</td>
<td>Arn:aws:controltowertools:ap-southeast-2::control/ ZMFZRNVUDDS</td>
</tr>
<tr>
<td>(Sydney)</td>
<td></td>
<td>Framework</td>
<td>Arn:aws:controltowertools:ap-southeast-1::control/ VTALPZJYLJOC</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td></td>
<td>Framework</td>
<td>Arn:aws:controltowertools:eu-central-1::control/QNKBYXYJBFJ</td>
</tr>
<tr>
<td>(Singapore)</td>
<td></td>
<td>Framework</td>
<td>Arn:aws:controltowertools:eu-west-1::control/XTRYNOHVVRZV</td>
</tr>
<tr>
<td>Europe (Frankfurt)</td>
<td></td>
<td>Framework</td>
<td>Arn:aws:controltowertools:eu-west-1::control/XTRYN</td>
</tr>
<tr>
<td>Europe (Ireland)</td>
<td></td>
<td>Framework</td>
<td>Arn:aws:controltowertools:eu-west-1::control/XTRYN</td>
</tr>
<tr>
<td>Europe (London)</td>
<td></td>
<td>Framework</td>
<td>Arn:aws:controltowertools:eu-west-1::control/XTRYN</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/WWOBB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>War:aws:controltower:eu-nor-th-1::control/IZGQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EIGCNXHB</td>
</tr>
<tr>
<td><strong>Europe (Stockholm)</strong></td>
<td>arn:aws:controltower:eu-nor-th-1::control/IZGQ</td>
<td></td>
<td>EIGCNXHB</td>
</tr>
<tr>
<td><strong>Asia Pacific (Mumbai)</strong></td>
<td>arn:aws:controltower:ap-south-1::control/DZCJRBFWFYZA</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Seoul)</strong></td>
<td>arn:aws:controltower:ap-northeast-2::control/SDFINEZEUSJY</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asia Pacific (Tokyo)</strong></td>
<td>arn:aws:controltower:ap-northeast-1::control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/QJDMOHVCOVCC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Paris)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-t-3:control/QHQLZNXRMJAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• South America (São Paulo)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas-t-1:control/UXJNMXZSDHBJG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (N. California)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes-t-1:control/KJPOXHOSICGE</td>
</tr>
</tbody>
</table>
## SH.WAF.2

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.WAF.2           | NIST 800-53 Rev 5 AC-4(21) | Limit network access | US East (N. Virginia)  
arn:aws:controltower:us-east-1:control/HMAUVMDCZUKN |
|                    | NIST 800-53 Rev 5 SC-7 |                | US East (Ohio)  
arn:aws:controltower:us-east-2:control/IZERZJXURES |
|                    | NIST 800-53 Rev 5 SC-7(11) |                | US West (Oregon)  
arn:aws:controltower:us-west-2:control/HVPCLRFIDJZZ |
|                    | NIST 800-53 Rev 5 SC-7(16) |                | Canada (Central)  
arn:aws:controltower:ca-central-1:control/PGGMESVIZFFP |
<p>|                    | NIST 800-53 Rev 5 SC-7(21) |                |                     |
|                    | PCI DSS version 3.2.1 6.6 |                |                     |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
|                    |           |                  | - **Asia Pacific (Sydney)**
|                    |           |                  |   arn:aws:controltower:ap-southeast-2:control/YJAUIVTCYRJW |
|                    |           |                  | - **Asia Pacific (Singapore)**
|                    |           |                  |   arn:aws:controltower:ap-southeast-1:control/MCGLKIFMEWCW |
|                    |           |                  | - **Europe (Frankfurt)**
|                    |           |                  |   arn:aws:controltower:eu-central-1:control/YNDDAPXATUIOY |
|                    |           |                  | - **Europe (Ireland)**
|                    |           |                  |   arn:aws:controltower:eu-west-1:control/HOFUVZWJNCCT |
|                    |           |                  | - **Europe (London)**
<p>|                    |           |                  |   arn:aws:controltower/... |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-west-2::control/CBNPH NXPNMZG</td>
</tr>
<tr>
<td>• Europe (Stockholm)</td>
<td>arn:aws:controltower:eu-northern-1::control/ZYSH REMBYDPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Mumbai)</td>
<td>arn:aws:controltower:ap-southeast-1:control/DLOLIYYVEVKV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Seoul)</td>
<td>arn:aws:controltower:ap-northeast-2:control/TMCZBYVXVTJL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Tokyo)</td>
<td>arn:aws:controltower:ap-northeast-1:control/TMSCZBYVXVTJL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/ DLQOSLPESPJR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-3:control_role/TJGYMRUITIEJ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-eas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control_role/SRGTMUGMZSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1:control_role/YGFAOMXOUWHM</td>
</tr>
</tbody>
</table>
## SH.WAF.3

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
</table>
| SH.WAF.3           | • NIST 800-53 Rev 5 AC-4(21)  
|                    | • NIST 800-53 Rev 5 SC-7  
|                    | • NIST 800-53 Rev 5 SC-7(11)  
|                    | • NIST 800-53 Rev 5 SC-7(16)  
|                    | • NIST 800-53 Rev 5 SC-7(21)  
|                    | • PCI DSS version 3.2.1 6.6  
|                    | • Limit network access  | • US East (N. Virginia)  
|                    |                        | arn:aws:controltower:us-east-1::control/KONSO-RMMHUGB  
|                    |                        | • US East (Ohio)  
|                    |                        | arn:aws:controltower:us-east-2::control/KRWNF-ORBWIPZ  
|                    |                        | • US West (Oregon)  
|                    |                        | arn:aws:controltower:us-west-2::control/LUZSI-LPCBBOK  
|                    |                        | • Canada (Central)  
<p>|                    |                        | arn:aws:controltower:ca-central-1::control/TE-FNOEPILSHB |</p>
<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Sydney)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-2: :control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CYGNEESCWZXG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Singapore)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:ap-sou</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>theast-1: :control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TFCNQSIYJFYC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Frankfurt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-cen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tral-1::control/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>VN FBLCXUEWUUA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Ireland)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-wes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>t-1::control/LSRTYDUWQTAE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (London)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/MUHOV SWIEMKQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/HOLX VCBPWTJX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/BXSA QBULUHIU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2::control/YMBNBHLDYVOC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1::control/YMBNBHLDYVOC</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/YRQAZZKPDDPI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/YPYYCPPXNLRIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/MDUPXZAXTPRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• <strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/BUWKEMZLQXRX</td>
</tr>
</tbody>
</table>
## SH.WAF.4

<table>
<thead>
<tr>
<th>Control identifier</th>
<th>Framework</th>
<th>Control objective</th>
<th>Control API identifiers, by Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH.WAF.4</td>
<td>- NIST 800-53 Rev 5 CA-9(1)</td>
<td>- Limit network access</td>
<td>• US East (N. Virginia)</td>
</tr>
<tr>
<td></td>
<td>- NIST 800-53 Rev 5 CM-2</td>
<td></td>
<td><code>arn:aws:controltower:us-east-1::control/EDXGDDVAPQUE</code></td>
</tr>
<tr>
<td></td>
<td>- PCI DSS version 3.2.1 6.6</td>
<td></td>
<td>• US East (Ohio)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:us-east-2::control/ZCXGVVXTGXMV</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• US West (Oregon)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:us-west-2::control/BFJEJSOYYREH</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canada (Central)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><code>arn:aws:controltower:ca-central-1::control/QNMFDARNQD</code></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>• Asia Pacific (Sydney)</td>
<td>arn:aws:controltower:ap-southeast-2:control/LYLUSATWXWGZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Asia Pacific (Singapore)</td>
<td>arn:aws:controltower:ap-southeast-1:control/RWKJOQGECYVA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Frankfurt)</td>
<td>arn:aws:controltower:eu-central-1:control/FXIUDQLP0O0X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (Ireland)</td>
<td>arn:aws:controltower:eu-west-1:control/KGKFNHJFEKZX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Europe (London)</td>
<td>arn:aws:controltower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>er:eu-wes t-2::control/XKBUF FXZKSUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Europe (Stockholm) arn:aws:controltower:eu-nor th-1::control/LKOW MMBVXXZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Mumbai) arn:aws:controltower:ap-south-1::control/ZGIH YMZBHXMV</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Seoul) arn:aws:controltower:ap-northeast-2:control/IVEPLVNECSLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Asia Pacific (Tokyo) arn:aws:controltower:ap-northeast-1:control/</td>
</tr>
<tr>
<td>Control identifier</td>
<td>Framework</td>
<td>Control objective</td>
<td>Control API identifiers, by Region</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>:control/BEIGEZGMNWRL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Europe (Paris)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:eu-west-3::control/GTNPVMNBKDAE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>South America (São Paulo)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:sa-east-1::control/EVTLKICADRVX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>US West (N. California)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>arn:aws:controltower:us-west-1::control/IZXJKPGEKAKL</td>
</tr>
</tbody>
</table>
AWS Glossary

For the latest AWS terminology, see the AWS glossary in the AWS Glossary Reference.